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ABSTRACT

The project reported here was done in Kentucky to develop, field test, evaluate, and revise 300 competency-based vocational education (CBVE) instructional modules in five occupational areas. These areas are automobile mechanics, air-conditioning and refrigeration, court and conference reporter, alterationist, and gardening and groundskeeping. This report begins with a brief description of the project rationale, goals, procedures, and results. Then follows an extensive appendix which comprises most of the report. The appendix begins with a management handbook for the production of vocational education modules, which covers module development, field testing (includes observation record form), revision (includes module evaluation form), payment procedures, and reporting procedures. Next is a list, by occupational area, of the modules and slide/tape presentations developed during the project. The remainder of the appendix contains a list of module writers, workshop agendas for module production, a list of field test teachers, and workshop agendas for field test teachers. The final portion of this report is comprised of supplements and includes a list of inservice education modules, a handbook for the development of vocational education modules, and a list of brochures explaining Kentucky CBVE. (EM)

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Final Report

Project No. 498AH60258
Grant No. G007603816

Development and Field Testing of Individualized and Modularized Instructional Materials for Vocational Education

Melissa Briscoe, Project Director
Kentucky Department of Education
Bureau of Vocational Education
Frankfort, Kentucky 40601

August, 1978

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education/Kentucky Department of Education position or policy.

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ABSTRACT

Title of Project: Development and Field Testing of Individualized and Modularized Instructional Materials for Vocational Education

Project Director: Melissa Briscoe

PURPOSE: This project grew out of the belief that the use of individualized instructional materials can capitalize on the individual characteristics of students by stressing a variety of teaching techniques and student performance as an end result. As a member of the Vocational-Technical Consortium of States (V-TECS), the Kentucky Curriculum Development Center had developed catalogs of performance objectives and criterion-references measures based on task analyses of the selected jobs and validated by responses from a sample of incumbent workers. The purpose of this project was to translate the V-TECS catalogs into viable programs of instruction, ready for implementation. This was achieved by developing, field testing, evaluating, and revising competency based instructional modules in five occupational areas.

PROCEDURE: Using the V-TECS catalogs, an analysis was made of current needs and five occupational areas were selected. Performance objectives were then sequenced into an acceptable learning pattern and a committee of vocational-technical teachers and one curriculum specialist was assigned in each area. The committee identified and purchased resource materials and developed student modules and instructors' manuals for field testing. After test sites were identified and field testing completed, student modules and instructor's manuals were revised for final printing.

RESULTS: To achieve the stated objectives, these items were developed: management handbooks for the production of modules; 602 student modules; 158 slide/tape presentations; instructor's manuals for each area; and four brochures explaining Kentucky Competency Based Vocational Education (CBVE).

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GLOSSARY OF TERMS

1. CBVE Unit - The Unit which is responsible for coordinating modules in all occupational areas, for printing and disseminating materials and for inservice and implementation activities for effective utilization of the materials.

2. Co-Director - A curriculum specialist or teacher educator who has expertise in an occupational area. This individual serves as the coordinator for that area and reviews all materials before they are given to the project director.

3. Competency - A skill, either cognitive or psychomotor, which is required in the vocation and which the student is expected to learn and demonstrate in the educational program.

4. Competency-based education - (also called performance-based education) An education program in which the competencies (or skills) to be acquired and demonstrated by the student, as well as the criteria to be applied in assessing the competencies, are made explicit. The student is held accountable for meeting those criteria.

5. Curriculum Package - A series of modules for an occupational area.

6. Field test teacher - A teacher who uses the modules in their classroom instruction and looks for any problems the student experiences in their utilization.

7. Module - A set of learning activities in organized physical form intended to facilitate the student's acquisition and demonstration of a particular competency or group of related competencies.

8. Performance objective - A statement which specifies a competency a student is to acquire and demonstrate.

9. Teacher-writer - A teacher with expertise in the occupational area who takes responsibility for developing the module area from performance objective and the criteria-reference measure.

10. Technical content specialist - An individual employed in the occupational area for which instructional materials are being developed and advises the project director, co-director, and writers on process and procedures for a task.

CHAPTER I - INTRODUCTION

Educators have stressed the importance of individual differences and variation in individual growth, development, and learning capabilities. At the same time, educational programs have been designed to educate all students during the same period of time, with varying levels of success accepted. The development of individualized instructional materials attempts to build curricula which capitalize on the individual characteristics of students, by stressing student performance as the end result and recognizing that time and teaching techniques will vary if all students are to achieve a level of success.

Rationale

For the past ten years Vocational Education in Kentucky has been characterized by expansion in the quantity of programs offered, the number of vocational teachers, and the quality and number of vocational facilities and student enrollment. While the quality of programs has consistently improved, the rapid expansion has created a need to focus on improving the quality of vocational programs for the next ten years. Program improvement includes continued upgrading in the quality of facilities and equipment, vocational teachers, and curriculum. Individualized instructional materials can provide a focus for curriculum improvement, involving both teacher preparation and facility design.

This report does not imply that existing programs are ineffective, but rather recognizes our capability for improving program efficiency and, particularly, for providing better educational service to vocational students. Through the use of individualized instructional materials, we believe we can increase the efficiency of programs and serve the students with a more consistent and effective education.

Accountability has received substantial attention as it relates to all educational programs and institutions. Evaluation techniques are being sought and/or developed to assist educational institutions to be more accountable. The effectiveness of accreditation, the traditional form for evaluating educational programs, has been questioned. A more revealing method of accountability seems to be an examination of the quality and quantity of desirable changes occurring in students enrolled in vocational programs. The individualized instructional materials developed in this project provide a process for assessing the competencies achieved by the vocational student and the relevance of the educational program to the needs of the students, the school, and the community.

Description of the Project

As one of the members of the Vocational-Technical Consortium of States (V-TECS), Kentucky had been in the process of developing catalogs

of performance objectives and criterion-referenced measures in vocational and technical education. The Curriculum Development Center, housed at the University of Kentucky, was given the responsibility of completing the catalogs within the State. Based on a task analysis of the selected job, and validated by responses from a sample of workers in the field, these catalogs of performance objectives and criterion-referenced measures have been written.

The basic purpose of this project was to translate the catalogs of performance objectives into viable programs of instruction, ready for implementation in the secondary, post-secondary, and adult training institutions of the State. It was the intent of this project to develop competency-based instructional modules, based on the V-TECS catalogs, then to field test and revise the instructional modules. Five priority vocational areas were identified for which individualized instructional modules were constructed: one from Kentucky-developed catalogs, and four from catalogs developed by other V-TECS member states. Eleven (11) inservice modules were developed to train the selected vocational personnel in developing the packages and producing the materials (See Supplement A & B). Later in the developmental process, inservice workshops were conducted to instruct selected teachers in the field testing and revising of the curriculum packages.

Prior to the onset of this project, the design for the curriculum delivery system was developed, and later adopted, by pooling ideas from personnel with the State Department of Education, the vocational teacher education agencies, and the regional supervisory staff and teachers.

Objectives

The major goal of the project was to develop, field test, evaluate, and revise competency-based instructional materials. The objectives leading to the accomplishment of the overall goal are as follows:

1. To develop approximately 300 instructional modules for five competency based programs to accompany catalogs of performance objectives and criterion-referenced measures in selected occupational areas.

2. To field test the instructional modules in ten (10) field test sites.

3. To revise the instructional modules based on the evaluation information received from the field test programs.

CHAPTER II - PROCEDURES

A project director was selected and assigned the responsibility of coordinating the development of the modules, field testing, and revision activities. In order to effectively accomplish this, within the time frame provided, the following sequential steps were implemented:

1. Copies of the catalogs of performance objectives and criterion-referenced measures developed by member states of V-TECS were obtained.

2. An analysis of curriculum needs based on V-TECS catalog development, manpower data and student enrollment in vocational programs was done by the Vocational Program State Supervisors.

3. As a result of this analysis, five occupational areas were selected for module development and five co-directors (curriculum specialists) with expertise in the subject area field were assigned to assist in the developmental stages of the instructional material.

4. The project director conducted a three-day inservice meeting for the co-directors to familiarize them with their respective responsibilities for module development. After this, monthly meetings to review progress and problems were held. (See Appendix A)

5. The catalogs of performance objectives for each occupational area were sequenced by the co-director and a committee of teachers into an acceptable learning pattern. (See Appendix B)

6. A committee of vocational-technical teachers and one technical content specialist was recruited for each of the priority areas. The teachers were selected on the basis of interest and competency, as identified by the specialist, the program development personnel, State Department of Education, and teacher educators in state universities. The technical content specialists were selected after consulting with teachers who had active craft committees from business and industry. The particular design of each curriculum package was determined before the committees were selected. (See Appendix C)

7. With assistance and input from teacher-writers and co-directors, supplies, publications, audio-visual aids, and other commercially prepared reference and resource materials were identified and purchased for use by the co-directors and teacher-writers.

8. A part-time editor, secretary, photographer, and artist were employed to work with each of the five occupational areas.

9. A series of workshops were held during the summer months for the teacher-writers for orientation and supervision in their module writing. (See Appendix D)

10. Before duplicating modules for the field test sites, each instructional module was edited and typed and appropriate art work and/or media completed to accompany each module. (See Figure 1 - Module Production Flow Chart)

11. Teacher-writers and co-directors developed instructors' manuals to accompany modules in each occupational area.

12. Field test sites for each occupational area were identified by the co-director and project director. (See Appendix E)

13. Additional supplies, references, and necessary audio-visual and storage equipment were ordered and provided for the field test teachers.

14. A workshop was held for the field test teachers to acquaint them with their responsibilities in field testing and revising the instructional materials. (See Appendix F)

15. The curriculum package of individualized instructional materials was field tested for an ample period of time to allow a majority of the students to complete the entire package.

16. Each field test site was visited at least five times, and additional meetings were held periodically during the year to review revision activities.

17. Field test modules and the instructors' manuals were revised, retyped, and edited. Changes in art work and media were made prior to printing for implementation sites. (See Figure 2 - Flow Chart for Revising Modules)

Each step of this process has been successfully completed, and the instructional materials are now being printed for distribution to all vocational programs interested in implementing them in their classrooms.

CHAPTER III - RESULTS

In order to accomplish, and even exceed, the three objectives of the project, the following tasks were completed:

1. Developed a Management Handbook for the production of Vocational Education Modules to be utilized by future project directors in Kentucky who may be coordinating a similar individualized instructional curriculum package. (See Appendix A)

2. Developed 602 individualized instructional modules for five occupational areas, going well beyond the 300 modules stated in the objectives. (See Appendix B) They are:

120	Air Conditioning
142	Auto Mechanics
116	Court and Conference Reporting
151	Altertionist
73	Gardening and Groundskeeping

3. Developed 158 slide/tape presentations to accompany the individualized instructional modules.

4. Developed an instructor's manual to accompany instructional modules for each occupational area above.

5. Field tested the instructional modules in 18 programs in Kentucky with approximately 275 vocational students.

6. With assistance from 25 vocational teachers, teacher educators, curriculum specialists at the Curriculum Development Center, and State Supervisors in the Bureau of Vocational Education, revised 602 instructional modules and 158 slide/tape presentations to be distributed to other vocational programs in Kentucky.

7. Provided consultative services, workshops, and inservice training to local school districts, area vocational centers/schools, and state universities using the eleven (11) in-service modules and the Handbook for Developing Modules developed prior to this project.

8. Developed four (4) brochures explaining various aspects of the Kentucky Model for Competency Based Vocational Education. (Supplement C)

The effort of producing the instructional modules, slide/tape presentations, and instructors' manuals was accomplished by hard work and cooperation from:

1. 65 vocational teachers and technical specialists
2. Teacher educators in three state universities
3. Curriculum Specialists at the Curriculum Development Center
4. State Supervisors in the Bureau of Vocational Education
5. People from business and industry

CHAPTER IV - CONCLUSIONS

As a result of this grant, curriculum development in Kentucky is continuing to change to a total competency based system. In the opinion of the writer, the system is established, but much work, time, and money is needed to continue to provide individualized instructional materials for each occupational area. Interest and enthusiasm for the material is extremely high. For the 1978-79 school year, 133 teachers in Kentucky have requested materials on these five occupational areas for use in their programs. In addition, each of these teachers attended an inservice workshop in June, 1978, to assist them in implementing the materials effectively. A second workshop for these teachers will be held in August.

Therefore, it is recommended that the process for developing and field testing individualized instructional materials for Vocational Education, established in this grant, be continued in Kentucky. In future projects of this type, it is recommended that additional time be allowed for initial module production by teachers, typists, editors, and media personnel before field testing. It is also recommended that additional inservice training for teachers and administrators who are implementing these materials be added as an essential step.

FIGURE 1

MODULE PRODUCTION FLOW CHART

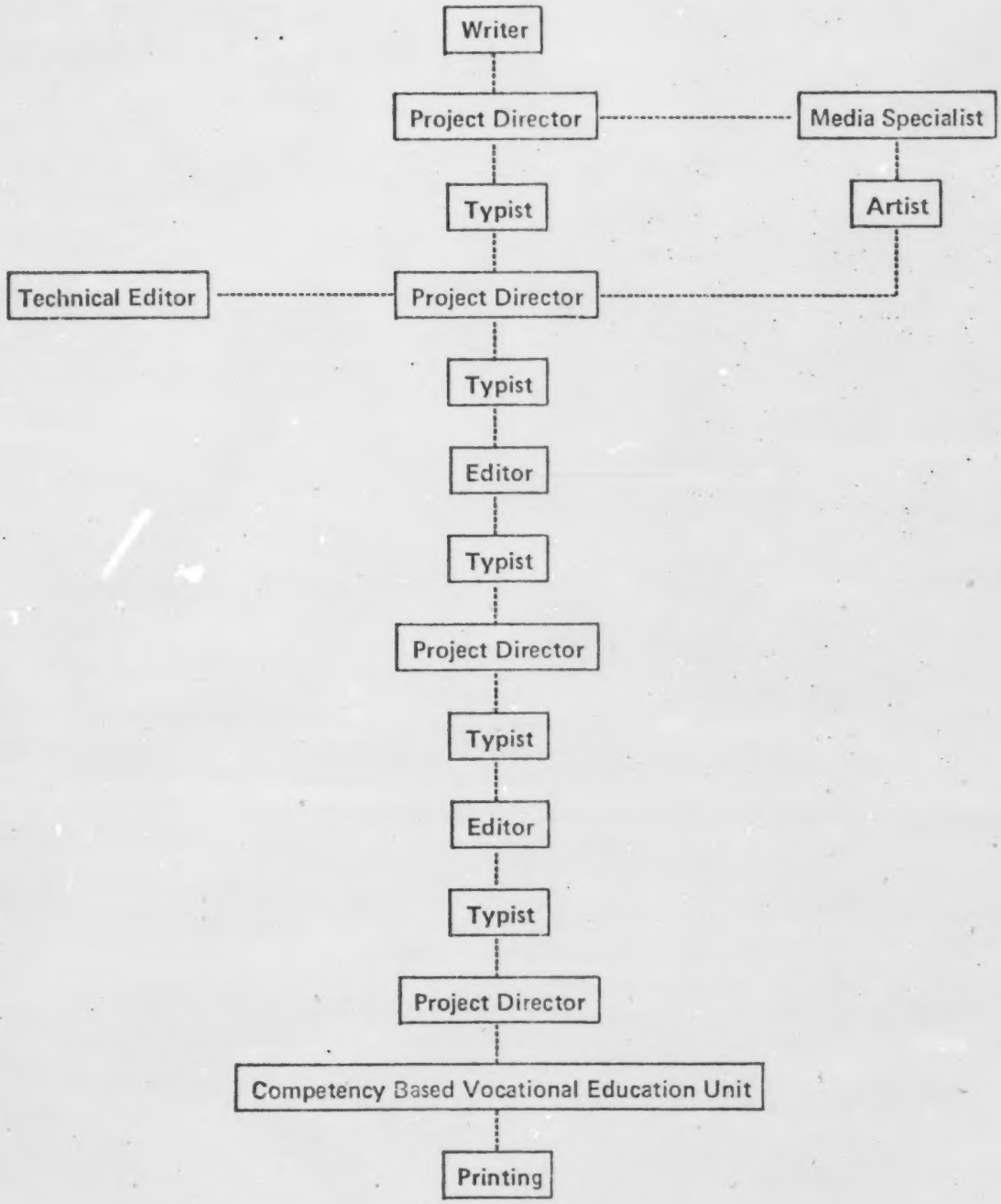
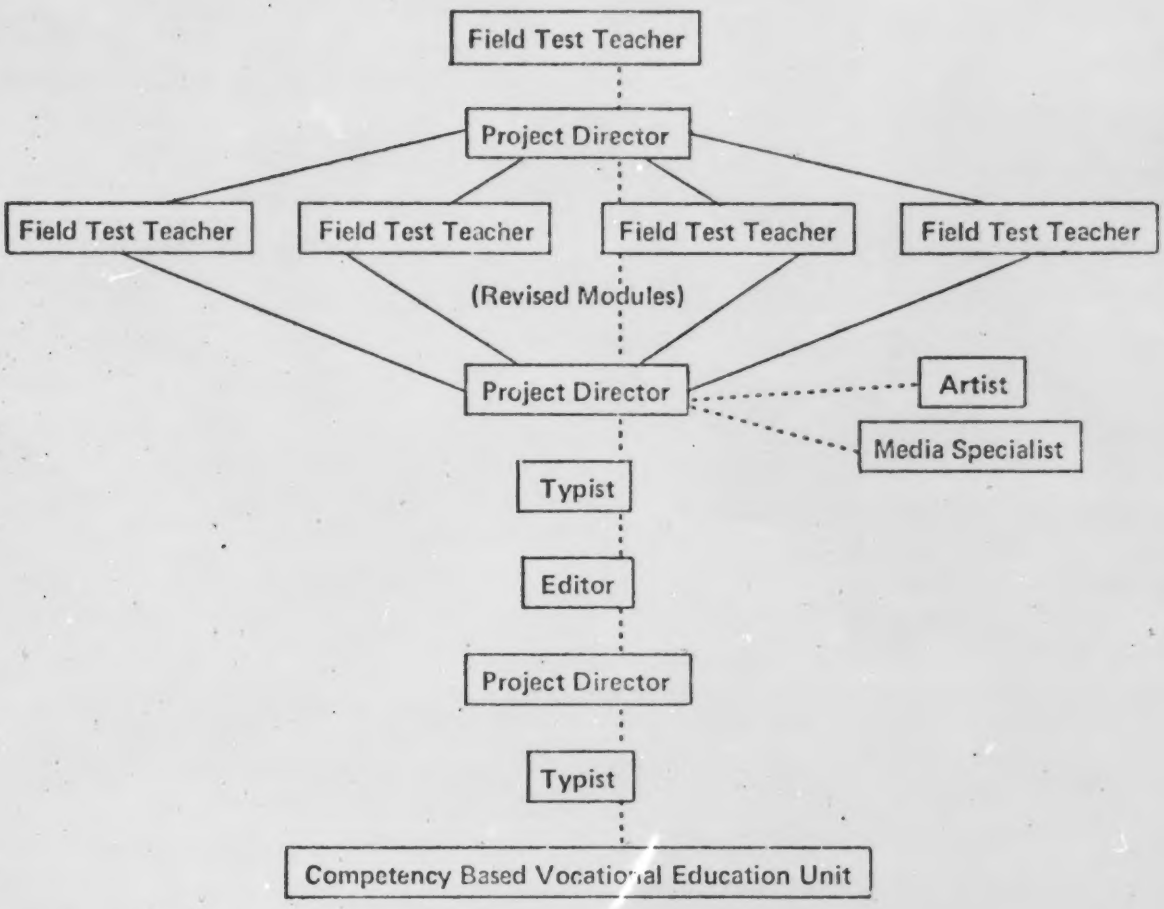


FIGURE 2

FLOW CHART FOR REVISING MODULES



APPENDIX A

MANAGEMENT HANDBOOK
FOR THE
PRODUCTION OF VOCATIONAL EDUCATION
MODULES

Competency Based Vocational Education Unit
Bureau of Vocational Education
Capital Plaza Tower, Room 2115
Frankfort, Kentucky 40601

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OVERVIEW OF THE HANDBOOK

This handbook is to be an aid and a guide for the project director as he or she becomes responsible for the development of Competency Based Vocational Education modules.

Because the techniques and practices of producing modules must be consistent and in the format adapted in the Kentucky Model for Competency Based Vocational Education, this handbook will attempt to provide the much needed information and to anticipate questions and problems that may arise during the production of individualized instructional modules.

The ultimate goal to be kept constantly in mind is the production of a module that is complete within the time frame provided. This will be accomplished in three phases – module development, field testing, and revision. The handbook is intended to be a ready reference to aid in the management of this task.

Materials, ideas, procedures, and resources used in this handbook have been developed and implemented in module production for the past two years by the Co-Directors in the Curriculum Development Center and in the Program Development Division for the Bureau of Vocational Education.

The finished product will include:

1. A program sequence
2. A module for each objective or two or three objectives as indicated in the sequence program. Each module must be in specified format and include check-out activities and a final checklist (see *Handbook for the Development of Vocational Education Modules* and *In-Service Module* 6).
3. Slide/tape presentations
4. An instructor's manual which includes:
   A. Program sequence
   B. List of instructional materials, supplies, and equipment needed
   C. An instructor's guide for each module produced
   D. List of slide/tape presentations

MODULE DEVELOPMENT TIME TABLE

As in all projects, time is of the essence. However, the quality of the product is equally important. Listed below are target dates when the various activities have to be completed in order to meet our schedule for field testing and revision.

	Activity	Person Responsible	Completion Date
1.	Sequence objective	Co-Directors	December 1
2.	Identify teacher/writers	Co-Directors and Project Director	January 15
3.	In-service workshop for project directors	CBVE Unit	February 1
4.	Finalize module sequence	Co-Directors, Writers, and Project Director	March 1
5.	Order materials (supplies, references, etc.)	Project Director	March 1
6.	Identify staff for: A. Editing B. Art work C. Photography	Project Director	March 15
7.	First workshop for module writer	Project Director	April 1
8.	Minimum of one module per writer to editor	Writers and Project Director	May 1
9.	Minimum of five modules (edited) to CBVE Unit	Editor/Project Director	May 15
10.	Second workshop for module writer	Project Director	June 15
11.	Slide tape presentations for first ten modules – edited and ready for duplicating	Writers, Photographer, and Project Director	June 30
12.	Third workshop for module writers	Project Director	July 1
13.	Three-fifths modules ready for editing	Writers	July 1
14.	First ten modules ready for printing	Project Director	July 1
15.	Fourth workshop for module writer	Project Director	July 30

	Activity	Person Responsible	Completion Date
16.	All modules written and to editor	Writers	July 30
17.	Instructor's manual materials to editor	Writers	July 30
18.	All slide/tape presentations ready for editing	Writer/Photographer	July 30
19.	Three-fifths modules edited and ready for printing	Project Director	August 1
20.	One-half instructor's manual materials edited and duplicated	Project Director	August 1
21.	One-half of slide tape presentation ready for duplicating	Project Director	August 1
22.	Remainder of modules ready for printing	Project Director	September 15
23.	Remainder of instructor's manual completed	Project Director	September 15
24.	Remainder of slide/tape presentations ready for duplicating	Project Director	September 15

PERSONNEL

Project Director

The director of the project will be responsible for the overall coordination of the module development project through the revision process. More specifically he or she will be responsible for:

1. Finalizing module sequence with assistance of the Co-Directors at the Curriculum Development Center and the Bureau of Vocational Education
2. Identifying teacher/writers with assistance of the Co-Directors
3. Participating in an in-service workshop conducted by the Competency Based Vocational Education Unit
4. Ordering references and supplies needed by the writing team and clerical staff
5. Planning the four workshops (15 days) for module writers
6. Employing, supervising, and coordinating the work of an editor, artist, photographer, and secretary
7. Doing initial editing of each module for course content and completeness
8. Submitting a camera ready copy of all modules to the Competency Based Vocational Education Unit for printing
9. Submitting a copy of all slide/tape presentations to the Competency Based Vocational Education Unit for duplicating
10. Submitting other items requested by the Competency Based Vocational Education Unit as outlined on Page 19.
11. Identifying four field test sites for modules
12. Planning and conducting an in-service workshop for the field test teachers
13. Ordering materials and equipment needed by the field test sites to utilize modules
14. Visiting each field test site a minimum of five times from September to April
15. Planning and conducting workshop for revision teachers
16. Coordinating revision activities of revision writers, editors, media people, and typist
17. Submitting a camera ready copy for printing of each revised module
18. Submitting an instructor's manual for printing

19. Submitting a copy of each revised slide/tape presentation

20. Handling all administrative aspects of the project which include funding and payment according to the approved proposal

Teacher/Writers

Teachers will be identified by the project director and the Co-Directors at the Curriculum Development Center and the Program Development Division. The teachers selected should be knowledgeable and interested in the occupational area as well as creative. They should also be able to organize their materials and ideas.

Approval from their superintendent or vocational regional director must be received to provide the extended employment or release time needed for their work. A letter to the superintendent or regional director should be sent explaining the activities the teacher will be involved in during this time. Each writer will be employed for two months and will attend fifteen days of intensive workshops during that time.

The teachers identified will produce those modules assigned to them by the Director of the project. They will produce each module in accordance with the guidelines specified in the module production handbook. They will produce drafts of art work and materials for media in a usable form for the artist and photographer. They will assist in the production of the instructor's manual following guidelines specified in the handbook for manual production.

Secretary/Typist

The secretary/typist will be responsible for typing all the materials for the modules and the instructor's manual. They will follow the format and style established and should work closely with the editors and project director to insure that office production moves at a quality and rapid pace. This may require almost 100 percent of a secretary's time during May, June, July, and August.

The secretary will also be responsible for typing all correspondence, forms, etc. required for the selection of teacher/writers, workshops, and revision procedures.

Editor

A part-time editor should be employed to complete the initial editing from the project director. This person should be able to recognize needed changes in grammar, organization, and punctuation for student readability and understanding.

The editor is responsible for taking the initial product from the writer and project director and making it a polished product that is consistent and easily understood. The editor should work closely with the writer and project director to offer suggested improvements. Once the module leaves the editor for final typing, it should be as near perfect as possible.

Technical Editor

A technical editor may be employed to verify that the content in the module is correct. This should be someone who is knowledgeable of the actual tasks performed on the job.

Artist

The artist will be responsible for producing all art work required for the modules. The artist should be a competent individual who can do a quantity of work as well as high quality work.

Photographer

The photographer will be responsible for producing all media required in the modules. He will work closely with the media writers to develop and carry out ideas for media. They will produce finished slides to be included in the modules. In addition, they will have tapes produced after scripts have been edited.

The individual employed should be familiar with good photography equipment and procedures for producing 2 x 2 slides used for instructional purposes.

PRODUCTION PROCEDURES

Module Sequencing and Assignments

Each objective is analyzed and arranged in a logical learning sequence. In some cases, two or three very closely related objectives may be grouped together and included in one module. No more than three objectives should be covered in one module. Modules may then be grouped into blocks where learning is related.

Modules may be assigned to a teacher/writer on the basis of blocks or teacher preference and experience of content. Each teacher/writer should be responsible for developing approximately the same number. However, the first ten modules should be divided among all the teachers to facilitate getting these ready for printing in time for the in-service workshop for field test teachers in August.

Approximately one teacher/writer should be selected for every ten to twelve modules to be produced.

Supplies

Typing supplies such as paper, correcting material, etc. will be needed. Artists will need specific pens and art paper for their work. In addition, film and photography supplies such as title cards and letters will be needed. After each staff member has had an opportunity to provide the project director with supplies needed, they should be ordered and available as needed. In addition, specific forms (samples of which are included in the appendix of this handbook) will need to be duplicated. These forms may provide more consistency and expedite the process.

References for Teacher/Writers

The project director with the assistance of the Co-Director at the Curriculum Development Center and teacher/writers should decide on specific references that may be utilized in module writing. Sufficient copies of these references should be ordered and given to teacher/writers at the first workshop. The number of references should be kept to a minimum to reduce costs for schools implementing the program and to provide consistency to the total program.

Workshops

Teacher/writers will be involved in approximately fifteen days of workshops under the direction of the project director. These workshops should be designed to enable writers to obtain the information they need and to provide an atmosphere for a high rate of productivity. Teacher/writers will be expected to continue module production at home or school between workshops.

A. The First Workshop – This should be held prior to April 1, if at all possible, for approximately two days. During this workshop teacher/writers should complete in-service modules 1, 4, and 6. Specific module assignments should be made at this time. In addition, time should be spent in explanation of procedures for producing slide/tape presentations and art work. When the teacher/writer leaves, he should know exactly what he is to do, how to do it, and when the job must be done. As a result of this workshop, two modules should be completed and sent to the project director in sufficient time for initial editing before the second workshop. Sufficient references and forms to be used should be provided to each teacher/writer.

B. The Second Workshop – This should be for one week immediately after the school year ends for the teacher/writers. At this time, the edited modules previously submitted should be discussed in an effort to improve the quality of future modules. Producing a minimum of two modules and the appropriate media should be the primary goal of each writer for this workshop.

C. The Third Workshop – This should be for one week at the end of June. The agenda and the goals of the workshop should be very much like the second workshop. Productivity or the number of modules should be increasing by this time. The writers should provide the project director with three-fifths of the total number of modules to be produced by the end of this workshop. In addition, at least one-third of the slide/tape presentations should be complete (slides produced and script ready for taping) and ready for final editing.

D. The Fourth Workshop – This workshop should be planned for at least three days. The primary objective would be for each writer to leave the remainder of the assigned modules completed and slide/tape presentations with the project director. A second objective would be the finalizing of an instructor's manual.

Procedures for Art Work

Art work will be required in modules in the instruction sheets, self-checks, and check-out activities. All art work included in a module must have a strictly instructional purpose. For more specific details on illustrations to be used see the *Handbook for the Development of Vocational Education Modules*, Pages 65-67.

When art work is needed, the following procedures will be followed:

1. The writer should include a picture or sketch of the illustration, form, etc. specifying information and technical data. Copyrighted materials cannot be used.

2. All drawings will have to fit on an 8½ x 11" page.

3. Once the project director has initially edited the module for content, he or she will send the art request to the artist.

4. If there are questions, the artist will then return the initial drawing to the project director for review.

5. After being reviewed, changed, etc. the artist will make the final drawing and send to the co-director to be included in the module before the final editing.

Procedure for Making Slide Tape Presentation

The project director will need to work very closely with the photographer so that his time can be scheduled to utmost effectiveness. In addition, the project director will need to edit the slides and the script before taping and will need to follow through on the total project.

Once the photography work is completed, the film should be processed as quickly as possible. If possible, all processing should be done at one location. After processing, the writer, photographer, and project director should review the slides to see if they fit into the guidelines as explained in the *Handbook for the Development of Vocational Education Modules*, Pages 69-73.

Once the appropriate slides are selected, they should be sequenced with the script and edited by the editor before taping. The persons selected to cut the tapes should be individuals with excellent enunciation skills.

Once the slide/tape presentation has been completed, each set should be labeled with the module number. At least one set for each field test site and one set for the CBVE Unit should be duplicated. The project director should keep one copy on file.

The Editing Process

Editing is an essential process in the development of quality modules. Each module should be edited and reviewed many times between the first copy from the writer and the camera ready copy for printing. A sample routing sheet for this process is included in Appendix B. Therefore, the following steps are highly recommended for the editing process:

1. Once a module is received from the writer, it should be reviewed by the project director for content, completeness, and readability and given to the typist with an explanation for typing. (See Appendix C for sample typing forms)

2. Once initial typing is completed, the module should go back to the project director for additional review and change. After this review, the material should go back to the typist for additional typing.

3. The editor should then receive the material and edit it for readability, completeness, consistency in format and consistency within the module (making sure objective, learning activities, final checklist and check-out correlate). At this point the editor and project director may confer on changes to be made. The module then goes to typist for changes.

4. Once retyped, the module should be reviewed by the project director. If a technical editor is available, the material should be reviewed by that person and returned to the project director for review.

5. After this review and retyping, final editing by the editor should then take place and additional typing done.

6. As the module is completed, the pages which go into the instructor's manual should be completed and edited. These pages should include the guide to learning activities, plus copies of supplemental pages and answers to check-out activities. The pages are held until the manual is finished and prepared for printing.

7. After final editing and typing, the module should be sent to the CBVE Unit for printing.

Guidelines for Editing

1. Introductions should be clear and concise.

2. Directions should follow the format, including prerequisite modules when appropriate.

3. Objectives are to be exactly as stated in the V-TEC's catalog and the objective number should be given in the upper right hand corner of the title page.

4. Learning Activities should be designed to lead directly to the competencies specified in the objectives and should be complete enough to enable the student to reach the objective. There should be some variety in the type of activities to be done. Most modules should include a minimum of one self-check.

   NOTE: There should be a balance between comprehensive instruction sheets and learning activities which refer to references.

5. Each module should be as self-contained as possible. (Self-checks and instruction sheets should be included in the module with a minimum of references to other modules. Check-out activity sheets may be in the module or may be handed out by the instructor when the student is ready to check out.)

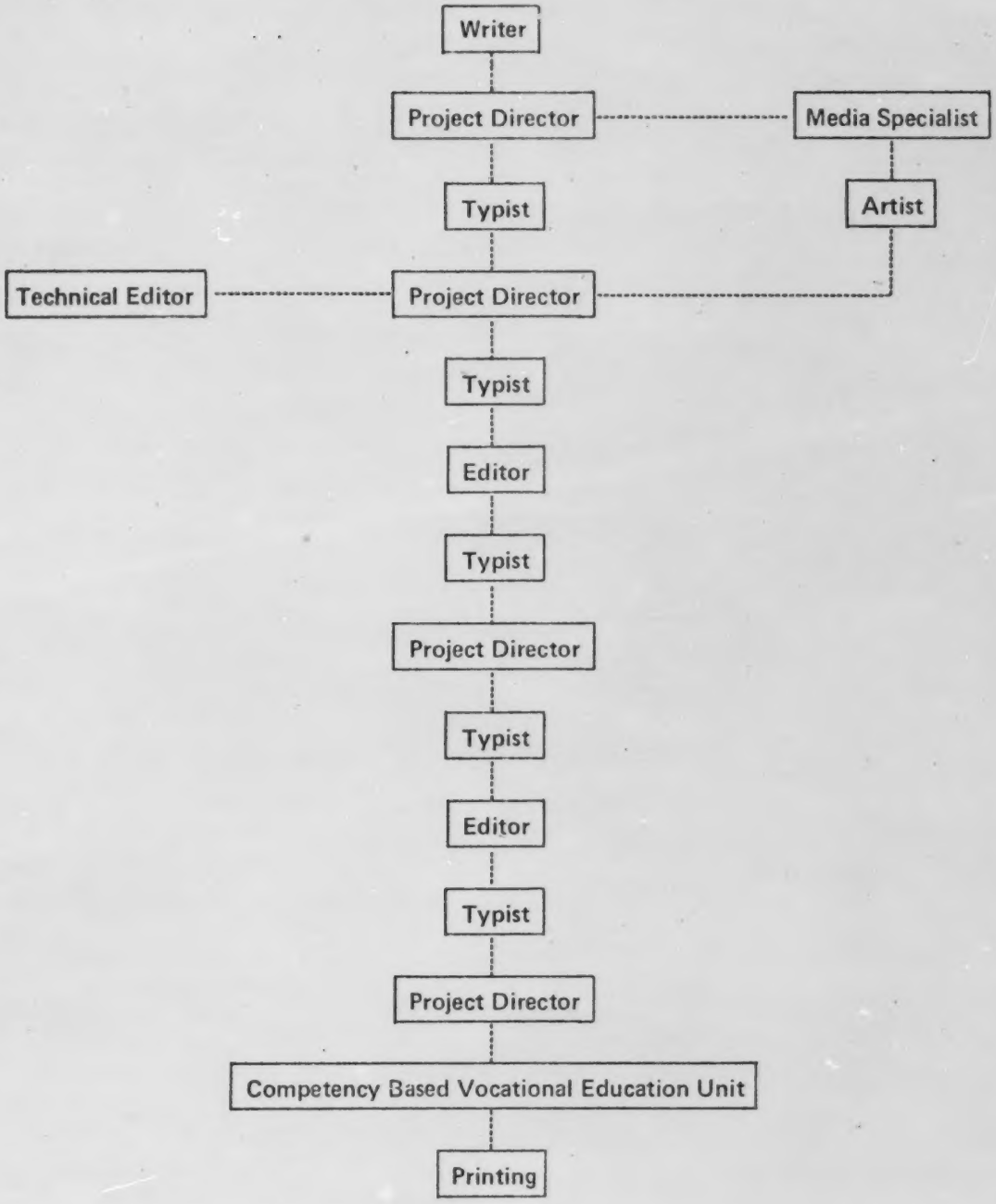
6. Each sheet of paper in the module should be labeled with the appropriate module number and "perishable" pages indicated. "Supplemental" pages which are not actually included in the module should be prepared and submitted for printing in a separate envelope attached to module envelope.

7. The author's name, publishing company, edition, and page numbers should be included each time a reference is made to commercially prepared material.

8. Slide/tapes produced with the module bear the module number plus a title, usually the same title as the module; e.g. FD-29, "Making Corsages." If more than one slide/tape presentation is produced, they are to be numbered as follows: FD-29-1, "Making Corsages," FD-29-2, "Boxing Corsages."

For additional information and samples concerning the various components within a module, refer to the *Handbook for Development of Vocational Education Modules*. On pp. 75-79, there is additional information on module evaluation for editors and project directors.

MODULE PRODUCTION FLOW CHART



FIELD TEST TIME TABLE

Before modules are completed, we must begin getting ready to field test the material. This will involve selecting field test teachers, ordering supplies and equipment required, and conducting in-service education workshops for the field test teacher.

Hopefully, this can be accomplished within the following time table:

	Activity	Person Responsible	Completion Date
1.	Selection of four field test sites	Project Director & Co-Directors	July 1
2.	Order supplies and material	Project Director	July 15
3.	Conduct workshop for field test teachers	Project Director	August 15
4.	One visit to each site	Project Director	October 15
5.	Field test responses of first five modules	Field Test Teacher	October 15
6.	Field test responses of first ten modules	Field Test Teacher	November 1
7.	A second visit to each site	Project Director	December 15
8.	A third visit to each site	Project Director	February 1
9.	Field test responses on one-half of modules	Teacher	March 1
10.	A fourth visit to each site	Project Director	March 15
11.	A fifth visit to each site	Project Director	May 1
12.	Field test responses, all modules	Field Test Teachers	May 1

SELECTING FIELD TEST TEACHERS

Four teachers should be selected to conduct the field test modules by the project director and the co-director of Competency Based Vocational Education from the Program Development Unit. If possible, writers (not more than two) should be considered in the selection of field test sites. If feasible, they should be from various parts of the state and in different school districts. Teachers and schools selected should be ones that are somewhat flexible and very conscientious. There should be adequate equipment available in the program area to implement the modules. In addition field test teachers selected should be willing to serve as revision writers for the material.

After teachers have been selected, a letter should be written to administrative school personnel explaining the purposes and requesting their approval.

HANDLING EQUIPMENT AND INSTRUCTIONAL MATERIALS

A list of the required equipment (example: audio visual equipment) and of the required instructional materials will be compiled from the writers and project director. The project director should then determine the approximate quantity needed and the cost. All materials and equipment should be ordered in sufficient time to be distributed by the project director at the in-service workshop. All materials should be shipped to the project director for distribution. Schools should inventory all equipment over $50 and send the appropriate inventory cards to their regional offices.

IN-SERVICE WORKSHOP FOR FIELD TEST TEACHERS

An in-service workshop for the field teachers should be held during the first two weeks of August for approximately five days. During this workshop, the teachers should complete in-service modules 1, 7, 8, 9, 10, and 11; discuss the modules they will be working with; become extremely familiar with the first ten modules and the instructor's manual; and receive the equipment, references, and other instructional materials available. In addition, some time should be spent in explaining their responsibilities for revision and the procedure that will be followed. Travel expenses will be paid for each field test teacher to attend this workshop; and if approval is granted by the school administration, extended employment or release time for vocational school personnel will be available.

SUPERVISING THE FIELD TEST SITES

During the field test period, the project director should visit each field test site at least five times. It is very important that at least one visit per site be made at the beginning of the school year to assist teachers in getting off to a good start and to review revision procedures. A visitation program can eliminate many problems and reinforce the importance of field testing.

REVISION

Revision is the primary purpose of field testing. For this reason the field test teachers are requested to make the necessary corrections, suggested changes or additions, and an overall evaluation of the modules on a master module. These changes should be made once a majority of the students have completed the module. They should be based on a consensus of student and teacher needs and outcomes. Revision activities should include the module, slide/tape presentations, art work and the instructor's manual.

TIME TABLE FOR REVISION ACTIVITIES

In order to accomplish the task of having modules revised and printed for schools wanting to implement them, the following schedule is recommended for revision.

	Activity	Person Responsible	Completion Date
1.	One or two day workshop for revision writer (field test teachers)	Project Director	October 15
2.	First five field test modules revised, edited, and retyped for printing	Project Director	November 15
3.	Field test modules 6-10 revised, edited, and retyped for printing	Project Director	December 1
4.	A second one or two day workshop for revision writers	Project Director	February 1
5.	One half of modules revised, edited, and retyped for printing	Project Director	May 1
6.	All field test modules revised, edited, and retyped for printing	Project Director	June 1
7.	Instructor's manual revised, edited and ready for printing	Project Director	June 1
8.	All slide/tape presentations revised and ready for duplication	Project Director	June 1
9.	Assistance in in-service workshop for implementation teachers	Project Director	June 30

PROCEDURES FOR REVISION ACTIVITIES

Revision procedures are very much like those used in module development. The personnel involved and their responsibilities would be the same. However, field test teachers would perform as teacher/writers. The procedures for doing art work, slide/tape presentations, editing, and typing would be same for revision of modules as that discussed in the Module Development Procedures of this handbook.

First Ten Modules

Because time is an important factor, each field test teacher should submit the master module indicating the suggested revisions of the first ten modules as soon as possible. These suggestions will be coordinated by the project director and retyped. They will then be sent to the editor for review and if necessary, art and photography work will also be revised. Once the editor has reviewed it, it will be sent back to the project director and then to the typist for final typing.

The Remaining Modules

This process may follow the same procedure as above. If so, the project director may wish to establish an intermediate timetable so that he could schedule his work accordingly. For example: changes of Module 11-20 should be submitted by December 15, etc. All suggested changes for all modules, slide/tape presentations, and instructor manuals should be given to the project director by May 1. Once a revised module has been edited and the final typing completed, it is to be sent to the Competency Based Vocational Education Unit for printing.

An alternate procedure for revising modules would be to divide the remaining modules among the field test teachers and assign each teacher specific modules to revise. If this procedure is followed, communication among teachers would be important. In this procedure, the revised module would be edited by the project director and editor and retyped for printing.

Workshops

The project director should plan two short (one- or two-day) workshops with the revision writers. When the teacher leaves the first workshop, he should know exactly what he is to do, how to do it, and when the job must be completed. In addition to discussing module revision procedures, the writer should be given instruction on the revision of slide/tape presentations.

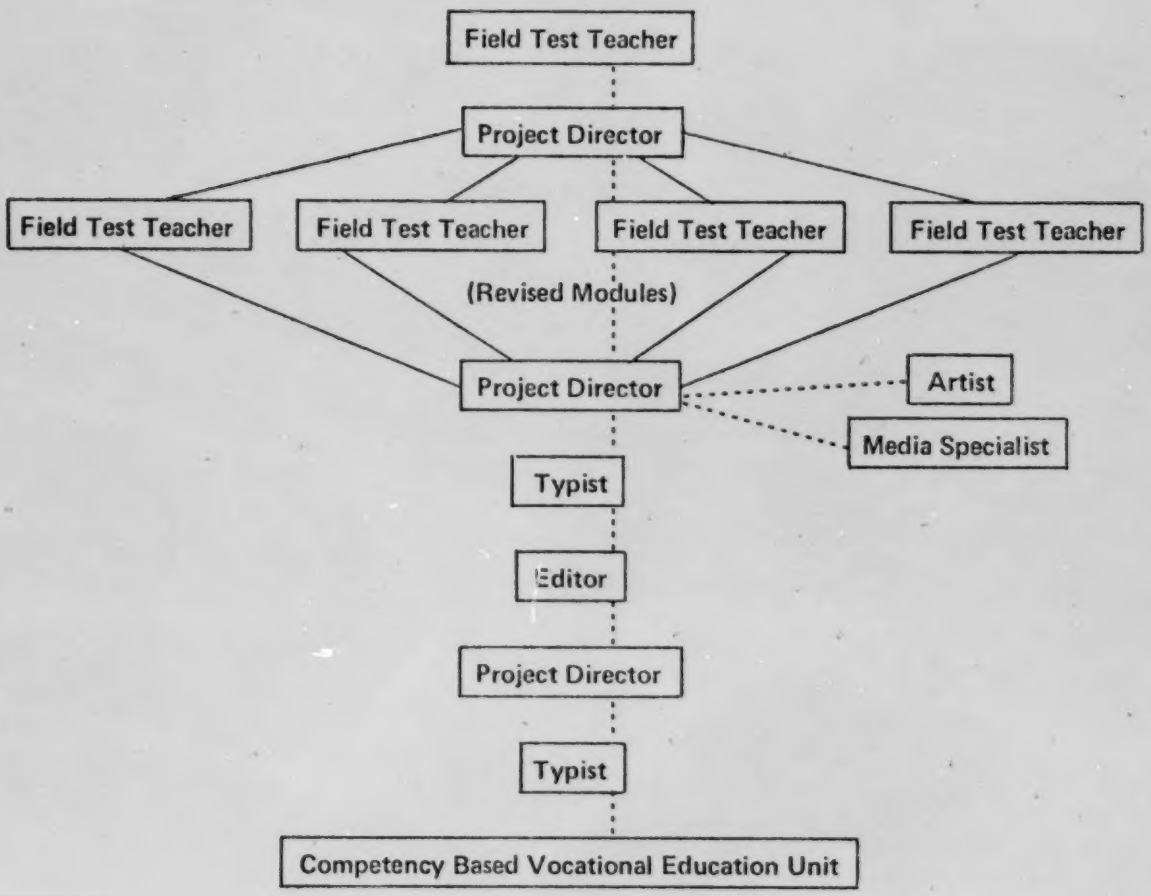
The second meeting should be for the primary purpose of sharing and discussing ideas for revision with one another. The project director may want to spend some time reviewing revision procedures and the status of the project.

IMPLEMENTATION

The module development program is complete once all materials have been field tested and revised. However, this is only the beginning for the majority of the teachers who will utilize them.

Once teachers desiring to implement the modules are identified, in-service must be conducted for them. Hopefully, this in-service will be provided through a university or a vocational region workshop. It would be very helpful if the project director for module development could be involved in working with the in-service program for implementation teachers.

FLOW CHART FOR REVISING MODULES



PAYMENT PROCEDURES

The project director will be responsible for the expenditure of funds as established by the project budget.

However, to provide consistency in all areas the following procedures should be followed:

A. Personnel Costs

1. Writers – All teacher/writers will receive a stipend of $30 for each non media (slide/tape presentation) module produced and $40 for each media produced module. Payment is to be made at the completion of the project.

2. Secretarial and Project Director Salaries – Funds have been provided for the total project. One secretary/typist and project director should plan to be involved full-time in this project during May, June, July, and August. In addition, the duties of this project may require the director and secretary to spend one-third to one-half of their time on the project during the remaining months of the project.

3. Editors, Photographers, and Artists – Each should be paid on an hourly wage. Funds budgeted include the revision process as well as the original production.

4. Technical Editor – Technical editors are to be paid for each module the project director requests they review for content. This should be paid at the completion of the project as determined by the project director. (In the past this has been $5 a module)

5. Revision Writers – Each will be paid $5 a module upon completion of the revision stage of the project.

B. Travel

1. Writers – Travel for attendance at each of the four workshops is to be paid according to state travel regulations with receipts required (specific information will be supplied prior to the first workshop).

2. Project Director – Travel is allowable for the in-service workshop for project directors; for visiting teachers between writer workshops; for delivery of completed modules to the Competency Based Vocational Education Unit; for visiting field test sites, and for working with revision teachers.

3. Photography – Travel for writers and photographers to acquire shots for producing slides.

4. Field test teachers – Travel is provided for field test teachers to attend the in-service workshop and to attend the workshop for revising modules. This will be paid according to state travel regulations (specific information will be supplied later).

C. Equipment and Instructional Materials for Field Test Sites

The project director will be responsible for purchasing audio visual equipment required to implement Competency Based Vocational Education materials in field test sites and for purchasing instructional materials needed from project funds.

D. Supplies and References

The project director is responsible for purchasing all supplies needed by writers, clerical staff, artist, etc. as provided in the approved budget.

REPORTING PROCEDURES AND DATES FOR PROJECT

The following items should be sent to the Competency Based Vocational Education Unit, 2113 Capital Plaza Tower, Frankfort, Kentucky 40601. The project director should keep on file at least one copy of all material submitted.

	Item	Date
1.	Names and address of teacher/writers with approval of local school administrator.	January 15
2.	Agenda plans for first workshop with writers	March 1
3.	Final copy of program sequencing	March 15
4.	Names of editor, artist, and photographer employed and proposed work schedule (when begin, how many hrs., etc.)	March 15
5.	Copies of first five modules after editing with instructor's manual sheet.	May 15
6.	Plans for second, third, and fourth workshops	May 15
7.	Two slide/tape presentations after editing	June 15
8.	List of field test sites (teacher and school) and workshop plans	July 1
9.	First ten modules completed	June 15
10.	Slide/tape presentations for first ten modules	July 1
11.	List of equipment and materials to be purchased in each field test site	July 1
12.	One-half of instructor's manual, one-half of slide/tape presentations ready for duplicating, and three-fifths of modules completed	August 1
13.	Remainder of modules completed	September 15
14.	Remainder of instructor's manual completed	September 15
15.	Remainder of slide/tape presentations ready for duplicating	September 15
16.	A copy of field test observations after visitations	
17.	Plans for revision workshop, personnel, and procedures for revision	September 15
18.	A camera ready copy of first five revised and edited modules for printing	November 15

	Item	Date
19.	A camera ready copy of modules 6-10 revised and edited	December 1
20.	A copy of each revised module by	June 1
21.	A copy of each revised slide/tape presentation by	June 1
22.	A copy of the revised instructor's manual	June 1

FIELD TEST OBSERVATION RECORD

KENTUCKY COMPETENCY-BASED VOCATIONAL EDUCATION PROJECT

PROGRAM _____

SCHOOL _____ TEACHER _____

DATE OF VISIT _____ PROGRAM MONITOR _____

Place a check [✓] on the line in front of the appropriate response.

I. Class activities at time of visit:

_____All students were working on modular program

_____Some students working on modules, some on other activities

[specify other] _____

_____Class was not working on modules [specify what and why] _____

_____

II. Teacher activities at time of visit [check one or more]:

_____Working with students individually

_____Working with small groups of students

_____Holding large group demonstration, discussion, lecture

_____Working on project or "live work"

_____Inactive

_____Other [specify] _____

III. Problems reported by teacher during visit:

_____Management of learning materials and resources

_____Class organization and management

_____Lack of needed equipment and/or supplies

_____Problems with administration

_____Deficiencies in learning modules

_____Problems with supporting media

_____Lack of instructional reference material

_____Poor student motivation

_____Students having difficulty with subject matter

_____Teacher feels unprepared for CBE

_____Teacher feels weak in knowledge of subject matter

_____Teacher feels overworked

_____Other [specify] _____

_____

IV. Positive aspects of program reported by the teacher:

_____Students show evidence of learning
_____Students are interested, motivated
_____Students are working at their own pace
_____Program perceived as improvement on traditional program
_____Teacher feels effective
_____Other [specify] _____

V. Reactions gathered from monitor's conversations with students:

_____Like modular program
_____Dislike program
_____Don't care
_____Think they are learning
_____Not learning much
_____Don't know
_____Other [specify] _____

VI. General observations by program monitor during visit:

_____Students appear busy, working hard
_____Students mostly busy, some apathy
_____A great deal of time being wasted
_____Confusion and inefficiency evident
_____Teacher not using modules as they were designed
_____Students not doing activities as they were designed
_____Teacher and student activities being carried out well
_____Final checkout activities being carefully followed
_____Final checkout activities being largely ignored
_____Organization and management problems hampering program
_____Facilities and resources hampering program
_____Other [specify] _____

_____

Immediate solutions suggested: _____

_____

Long-range solutions suggested: _____

_____

MODULE EVALUATION FORM

Kentucky Competency-Based Vocational Education Project

TITLE of MODULE: _____

Module No. _____ Teacher/Evaluator _____

Check [✓] your responses to the following module components:

I. THE INTRODUCTION: _____Very helpful; _____Somewhat helpful; _____Not helpful

_____Poorly written; _____Well written

Needs these changes: _____

_____

II. OBJECTIVES: _____Well stated; _____Difficult to understand; _____Not related

Needs these changes: _____

_____

III. LEARNING ACTIVITIES:

_____Too easy; _____Too difficult; _____Just about right

_____Too many; _____Not enough; _____About the right number

_____Too much knowledge or theory; _____Not enough; _____About right

_____Reading level too high; _____Too low; _____About the right level

_____Activities poorly sequenced; _____Activities well sequenced

_____Activities lack variety, dull; _____Activities varied and interesting

_____Directions unclear, confusing; _____Directions clear, easily followed

_____Too much skills practice; _____Too little practice; _____About right

_____Practice steps too large; _____Steps too small; _____About the right size

_____Too much time required; _____Module is very short; _____About right length

_____Too much teacher help required; _____Teacher not used; _____About right

_____Slide-tapes helpful to learning; _____Slide-tapes not helpful

Needs these changes: _____

_____

_____

IV. STUDENT SELF-CHECKS:

_____Helpful to students; _____Not very helpful

_____Used by student; _____Avoided whenever possible

Needs these changes: _____

_____

V. INSTRUCTION SHEETS:

_____Too long, wordy; _____Too short, incomplete; _____About the right length

_____Helpful to learning; _____Not very helpful

_____Not related to objectives; _____Right to the point

_____Poorly written, difficult to understand; _____Well written

_____Contain inaccurate information; _____Generally very accurate

_____Illustrations not helpful; _____Illustrations very good

Needs these changes: _____

_____

VI. INSTRUCTOR'S FINAL CHECKLIST:

_____Too many items, time consuming; _____Too few items; _____About right

_____Some trivial items; _____All items are important

_____Some items difficult to evaluate; _____Easy to evaluate

_____Items poorly stated; _____Items well written

Needs these changes: _____

_____

VII. STUDENT REACTION:

_____Liked working on the module; _____Disliked it very much; _____Didn't care

_____Completed most of the learning activities; _____Bypassed activities

TEACHER'S GENERAL REACTION:

_____Excellent module just as it is. I would use it again.

_____Good, but needs some revision.

_____Weak; needs a great deal of revision.

_____I would not use it until it is completely rewritten

Needs these overall changes: _____

_____

APPENDIX B

PROGRAM SEQUENCE MASTER SHEET

PROGRAM ALTERATIONIST I

MODULE NO.	MODULE TITLE
	BLOCK I WORLD OF WORK
AL-1	Becoming Employable
AL-2	Exploring Opportunities in Alterations
AL-3	Developing Personal Characteristics Needed in Alterations
AL-4	Getting a Job
	BLOCK 2 SEWING EQUIPMENT
AL-5	Threading, Cleaning, and Oiling a Power Machine
AL-6	Operating a Power Machine
AL-7	Operating a Serger
AL-8	Cleaning and Oiling a Domestic Machine
AL-9	Operating Domestic Machines
AL-10	Operating a Blindstitch Hemmer
	BLOCK 3 PERFORMING MISCELLANEOUS TASKS
AL-11	Removing Seams and Creases
AL-12	Pressing Techniques in Alterations
AL-13	Mending Rips and Tears
AL-14	Patches and Patching
AL-15	Adding Trim to a Garment
AL-16	Attaching Snaps and Hooks and Eyes
AL-17	Attaching Buttons with Shanks
AL-18	Attaching Buttons without Shanks
AL-19	Constructing and Attaching French and Flat Tacks

MODULE NO.	MODULE TITLE
AL-20	Making Buttonholes by Machine
AL-21	Lengthening and Shortening Belts
AL-22	Making Belts
AL-23	Using Chain Loops
	BLOCK 4 BASIC HAND SEWING TECHNIQUE
AL-24	Using a Tailor's Stitch
AL-25	Using a Blindstitch
AL-26	Using Even and Uneven Basting
AL-27	Using Slip Basting
AL-28	Using a Running Stitch
AL-29	Using a Slipstitch
AL-30	Using a Pickstitch
AL-31	Using a Backstitch
AL-32	Using a Whipstitch
AL-33	Using a Catchstitch and Invisible Catchstitch
AL-34	Using a Buttonhole Stitch
AL-35	Using a Vertical Hemming Stitch
AL-36	Using a Slant Hemming Stitch
	BLOCK 5 BASIC MACHINE SEWING TECHNIQUES
AL-37	Using Staystitching
AL-38	Using Easestitching
AL-39	Using the Stitch-In-The-Ditch
AL-40	Using Understitching
AL-41	Using Shirring or Gathering
AL-42	Constructing Flat Felled Seams

MODULE NO.	MODULE TITLE
AL-43	Constructing French Seams
AL-44	Constructing Plain Seams
AL-45	Constructing Lapped Seams
AL-46	Constructing Darts
AL-47	Constructing Tucks
AL-48	Constructing Pleats
	BLOCK 6 REPAIRING CLOTHING ARTICLES
AL-49	Replacing Fly Zippers
AL-50	Replacing Lapped Zippers
AL-51	Replacing Centered Zippers
AL-52	Repairing Frayed Seam Allowances
	BLOCK 7 ALTERING HEMS IN GARMENTS
AL-53	Selecting Hemming Stitches
AL-54	Selecting Hem Finishes
AL-55	Facing Hems
AL-56	Constructing Hems Using a Commercial Blindstitch Hemmer
AL-57	Using a Domestic Machine for Blindstitching
AL-58	Shortening or Lengthening Even and Uneven Hemlines
AL-59	Determining the Length and Hemming Floor Length Garments
AL-60	Using a Folded Edge Finish
AL-61	Using a Lace or Seam Tape Finish
AL-62	Using a Cut Edge Finish and Using a Pinked Edge Finish with Machine Stitching

MODULE NO.	MODULE TITLE
AL-63	Using a Zigzag Finish and a Zigzag Edgestitch Hem
AL-64	Using a Double Edgestitched Hem
AL-65	Using a Topstitched Hem
	BLOCK 8 ALTERING WAISTLINES
AL-66	Altering Elasticized Waistlines
AL-67	Altering Waistline Fullness Using Pleats, Gathers, Seams and Tucks
AL-68	Eliminating, Adding, or Repositioning Waistliné Darts (No Waistline Seam)
AL-69	Eliminating, Adding, or Repositioning Waistline Darts (Waistline Seam)
AL-70	Altering the Waistline of a Skirt or Pants
	BLOCK 9 ALTERING PANTS
AL-71	Altering the Length of Pants
AL-72	Widening and Narrowing Pants Legs
AL-73	Altering the Waistlines of Men's Pants
	BLOCK 10 ALTERING SLEEVES IN GARMENTS
AL-74	Decreasing Sleeve Width
AL-75	Shortening Sleeves (Without Cuffs)
	BLOCK 11 ALTERING BODY OF GARMENT
AL-76	Enlarging a Garment Through the Hip Section
AL-77	Altering a Garment Through the Hip Section to Make it Smaller
AL-78	Altering a Sleeveless Bodice (side seams)

PROGRAM SEQUENCE MASTER SHEET

PROGRAM ALTERATIONIST II

MODULE NO.	MODULE TITLE
BLOCK 1 PERFORMING MISCELLANEOUS TASKS	
AL-79	Covering a Snap
AL-80	Making Buttonholes by Hand
AL-81	Fitting Garments to be Altered
AL-82	Marking Garments for Alterations
AL-83	Monogramming a Garment
BLOCK 2 BASIC HAND SEWING TECHNIQUES	
AL-84	Using Diagonal Basting
AL-85	Using Felling Stitches
AL-86	Using Hong-Kong Stitches
BLOCK 3 REPAIRING CLOTHING ARTICLES	
AL-87	Replacing a Slot Zipper
AL-88	Replacing an Invisible Zipper
AL-89	Replacing a Separating Zipper
AL-90	Turning the Cuffs and Collars on Shirts
AL-91	Repairing Frayed Buttonholes
AL-92	Recovering Buckles and Buttons
AL-93	Replacing Lining in Coats
AL-94	Repairing Zippers
BLOCK 4 ALTERING HEMS IN GARMENTS	
AL-95	Altering the Hems of Lined Coats
AL-96	Altering the Hems in Fake Fur Garments

MODULE NO.	MODULE TITLE
AL-97	Altering the Hems in Vinyl Garments
AL-98	Shortening the Hems in Synthetic Suede Garments
AL-99	Altering the Hems in Leather or Suede Garments
AL-100	Shortening Raincoat Hems
AL-101	Using a Double Hem Finish
AL-102	Using a Hong-Kong Finish
AL-103	Hemming a Bridal Gown
AL-104	Using a Rippled Edgestitch Hem
AL-105	Using a Rolled Hem
	BLOCK 5 ALTERING WAISTLINES
AL-106	Raising and Lowering Waistlines with No Waistline Seam
AL-107	Raising and Lowering Waistlines with Waistline Seams
AL-108	Shortening the Length of a Garment at the Waistline
	BLOCK 6 ALTERING PANTS
AL-109	Adding a Cuff on Pants
AL-110	Removing cuffs From Pants
AL-111	Changing the Width of Cuffs
AL-112	Altering Crotch of Pants
AL-113	Altering Pants Which are Too Long in the Seat

MODULE NO.	MODULE TITLE
	BLOCK 7 ALTERING SLEEVES IN GARMENTS
AL-114	Altering Sleeves Too Full at the Armhole
AL-115	Altering Armholes Which are Too Tight
AL-116	Altering Sleeves Which are Too Narrow
AL-117	Altering the Sleeve Length in Outer Garments
AL-118	Fitting Sleeve Darts
AL-119	Altering a Sleeve With a Cuff
	BLOCK 8 ALTERING BODY OF GARMENT
AL-120	Altering Shoulder Width
AL-121	Increasing or Decreasing a Shoulder Seam Allowance
AL-122	Adding or Removing and Fitting Shoulder Pads
AL-123	Altering Bust Darts
AL-124	Altering the Bodice of a Princess Style Garment
AL-125	Altering the Waistline of a Princess Style Garment
AL-126	Altering the Skirt of a Princess Style Garment
AL-127	Altering a Bodice with Sleeves
AL-128	Altering Garments with Set-In Pockets
	BLOCK 9 ALTERING NECKLINES OF GARMENTS
AL-129	Removing Neckline Fullness in Garments Without Collars

MODULE NO.	MODULE TITLE
AL-130	Removing Neckline Fullness on Garments With Collars
AL-131	Enlarging and/or Lowering a Neckline Without a Collar
	BLOCK 10 ALTERING MEN'S CLOTHING
AL-132	Altering a Man's Vest
AL-133	Narrowing Lapels
AL-134	Shortening the Length of a Man's Jacket
AL-135	Altering Fullness Under the Collar of a Man's Jacket
AL-136	Altering Body of Man's Jacket
AL-137	Altering Shoulders of Man's Jacket
AL-138	Tapering Body of Man's Shirt
AL-139	Making Short Sleeve Shirt from Long Sleeve Shirt
AL-140	Tapering Trouser Legs
AL-141	Replacing Pockets in Pants
AL-142	Lowering Rise of Men's Pants
AL-143	Altering Seat Seam of Men's Pants
	BLOCK 11 PERFORMING CLERICAL AND SUPERVISORY DUTIES
AL-144	Accepting and Recording Delivery of Supplies
AL-145	Estimating the Cost and Completion Date of an Altered Garment and Preparing Itemized Statements
AL-146	Calculating Payroll and Keeping Sales Ledger
AL-147	Purchasing Small Equipment Supplies

MODULE NO.	MODULE TITLE
AL-148	Cleaning Work Areas
AL-149	Storing Supplies
AL-150	Performing Office Tasks
AL-151	Alterations to Avoid

MODULE SLIDE-TAPES

PROGRAM ALTERATIONIST

MODULE NO.	SLIDE-TAPE TITLE
AL-1	AL-1, "Becoming Employable"

FIRST SECTION
PROGRAM SEQUENCE MASTER SHEET
PROGRAM AIR CONDITIONING-REFRIGERATION

MODULE NO.	MODULE TITLE
INTRODUCTION TO COMPETENCY BASED INSTRUCTION AND AIR CONDITIONING-REFRIGERATION PROCEDURES	
AC-1	Soft Soldering
AC-2	Brazing Joints
AC-3	Adjusting Door on Refrigerators and Freezers
AC-4	Purging a Refrigerant System
AC-5	Repairing Leaks
AC-6	Replacing Refrigeration Tubing
AC-7	Repairing Refrigeration Tubing
AC-8	Checking Capacitors
AC-9	Servicing Electric Motors
AC-10	Leveling Cabinets
AC-11	Checking Refrigerant
AC-12	Checking Electricity
AC-13	Working with Electricity Components, Symbols, and Diagrams
AC-14	Measuring Resistance
AC-15	Measuring Voltage
AC-16	Measuring Current
AC-17	Apply Basic Electrical Theory
AC-18	Working with Series Circuits
AC-19	Working with Parallel Circuits
AC-20	Working with Combination Circuits
AC-21	Checking for Magnetism and Electromagnetism
AC-22	Working with Relays and Solenoids

MODULE NO.	MODULE TITLE
AC-23	Checking Characteristics of Alternating Current
AC-24	Working with Transformers
AC-25	Working with Single-Phase AC Induction Motors
AC-26	Working with Three-Phase AC Induction Motors
AC-27	Checking Electrical Wiring
AC-28	Using Electrical Servicing Equipment
AC-29	Evacuating a Refrigerant System
AC-30	Transferring Refrigerants
AC-31	Charging a Refrigeration System
AC-32	Replacing Filter-Driers
AC-33	Correcting Restrictions in Capillary Tube
AC-34	Replacing Capillary Tube
AC-35	Checking and Replacing Current Relays
AC-36	Checking and/or Replacing Compressor Overload
AC-37	Checking Open-Type Compressors
AC-38	Checking Operation of Compressor with Service Valves
AC-39	Testing Compressor
AC-40	Cleanup after Burnout
AC-41	Adding and Removing Lubrication Oil
AC-42	Replacing Semi-Hermetic Compressor
AC-43	Replacing Hermetic Compressor

SECOND SECTION
PROGRAM SEQUENCE MASTER SHEET

PROGRAM AIR CONDITIONING-REFRIGERATION

MODULE NO.	MODULE TITLE
AC-44	Checking Air Circulation Around Unit
AC-45	Installing Evaporators
AC-46	Repairing Leak in Evaporator
AC-47	Checking and Servicing Air-Cooled Condensers
AC-48	Replacing Air-Cooled Condenser
AC-49	Replacing Fan
AC-50	Replacing Thermostat
AC-51	Replacing Breaker Strips around Doors
AC-52	Checking Defrost, Mullion, and Drain Heater for Continuity
AC-53	Replacing Defrost Heater
AC-54	Checking Defrost Thermostat
AC-55	Checking and Replacing Defrost Timer
AC-56	Troubleshooting Refrigerant System
AC-57	Repairing or Replacing Solenoid Valve
AC-58	Checking Crankcase Heater
AC-59	Replacing Thermostatic Motor Controls
AC-60	Installing Motor Controls
AC-61	Installing Heat Interchanger (Exchanger)
AC-62	Servicing Liquid Receivers
AC-63	Installing Liquid Receivers
AC-64	Adjusting and Replacing Low Pressure Controls
AC-65	Adjusting and Replacing High Pressure Control
AC-66	Removing Restrictions from and Adjusting Automatic Expansion Valves

MODULE NO.	MODULE TITLE
AC-67	Replacing Automatic Expansion Valve
AC-68	Adjusting Thermostatic Expansion Valve
AC-69	Checking External Equalizer Line
AC-70	Repairing or Replacing Hot Gas By-Pass Valve
AC-71	Checking Step Down Transformer
AC-72	Adjusting Heat Anticipator on Thermostat
AC-73	Installing Thermostat Controls
AC-74	Servicing Electronic Controls including Replacing Tubes
AC-75	Replacing Solid State Controls
AC-76	Troubleshooting Magnetic Starter and Coil
AC-77	Checking Potential Motor Starting Relay
AC-78	Servicing Capacitor-Start Capacitor-Run Compressor
AC-79	Troubleshooting Electrical Circuits

THIRD SECTION
PROGRAM SEQUENCE MASTER SHEET
PROGRAM AIR CONDITIONING-REFRIGERATION

AC-80	Replacing and Adjusting Limit Switch
AC-81	Adjusting Fan/Limit Controls
AC-82	Lighting and Adjusting Pilot
AC-83	Adjusting Gas Burners
AC-84	Adjusting Gas Regulator Valve
AC-85	Checking and Replacing Heat Exchangers
AC-86	Checking and Installing Firestats
AC-87	Installing Heating Units
AC-88	Installing Supplementary Heat Strips
AC-89	Servicing Supplementary Heat Strips
AC-90	Servicing Heat Pump Controls

MODULE NO.	MODULE TITLE
AC-91	Installing Heat Pump
AC-92	Checking Operation of Reversing Valves
AC-93	Installing Cooling Units
AC-94	Balancing Water-Cooled Condensers
AC-95	Servicing Water-Cooled Condenser
AC-96	Replacing Water-Cooled Condensers
AC-97	Servicing Water Towers
AC-98	Servicing Evaporative Condensers
AC-99	Installing Evaporative Condensers
AC-100	Repairing Automatic Ice Makers
AC-101	Servicing Commercial Automatic Ice Makers
AC-102	Determining Wet and Dry Bulb Temperature
AC-103	Determining the Size Unit Needed for Given Space
AC-104	Preparing Requisitions for Equipment
AC-105	Adjusting Modutrol Motor
AC-106	Replacing Modutrol Motor
AC-107	Determining the Size and Location of Duct System and Registers
AC-108	Installing Packaged Equipment
AC-109	Selecting Evaporative Unit
AC-110	Balancing Evaporator for Adequate Air Flow
AC-111	Checking Duct System for Air Distribution
AC-112	Checking for Moisture in Controls
AC-113	Servicing Pneumatic Controls
AC-114	Adjusting Unloaders by Crankcase Pressure Method
AC-115	Adjusting and Replacing Oil Pressure Safety Control
AC-116	Making Dual Temperature Installation

MODULE NO.	MODULE TITLE
AC-117	Working with Solid State Devices
AC-118	Ordering Parts from a Catalog
AC-119	Applying for a Job
AC-120	Supervising Experience

MODULE SLIDE TAPES

PROGRAM AIR CONDITIONING-REFRIGERATION

MODULE NO.	MODULE TITLE
AC-1	Soft Soldering
AC-2	Brazing Joints
AC-3	Adjusting Door on Refrigerators and Freezers
AC-4	Purging a Refrigeration System
AC-5	Repairing Leaks
AC-6	Replacing Refrigeration Tubing
AC-7	Repairing Refrigeration Tubing
AC-8	Checking Capacitors
AC-9	Servicing Electric Motors
AC-10	Leveling Cabinets
AC-11	Checking Refrigerant
AC-12	Checking Electricity
AC-13	Working with Electrical Components, Symbols, and Diagrams
AC-14	Measuring Resistance
AC-15	Measuring Voltage
AC-16	Measuring Current
AC-17	Applying Basic Electrical Theory
AC-18	Working with Series Circuits
AC-19	Working with Parallel Circuits
AC-20	Working with Combination Circuits
AC-21	Checking for Magnetism and Electromagnetism
AC-22	Working with Relays and Solenoids

MODULE NO.	MODULE TITLE
AC-23	Checking Characteristics of Alternating Current
AC-24	Working with Transformers
AC-25	Working with Single-Phase AC Induction Motors
AC-26	Working with Three-Phase AC Induction Motors
AC-27	Checking Electrical Wiring
AC-28	Using Electrical Servicing Equipment
AC-29	Evacuating a Refrigerant System
AC-30	Transferring Refrigerants
AC-31	Charging a Refrigeration System
AC-32	Replacing Filter-Driers
AC-33	Correcting Restrictions in Capillary Tube
AC-34	Replacing Capillary Tube
AC-35	Checking and Replacing Current Relays
AC-36	Checking and/or Replacing Compressor Overload
AC-37	Checking Open-Type Compressors
AC-38	Checking Operation of Compressor with Service Valves
AC-39	Testing Compressor
AC-40	Cleanup after Burnout
AC-41	Adding and Removing Lubrication Oil
AC-42	Replacing Semi-Hermetic Compressor
AC-43	Replacing Hermetic Compressor

MODULE SLIDE TAPES

PROGRAM Air Conditioning-Refrigeration

MODULE NO.	MODULE TITLE
AC-44	Checking Air Circulation Around Unit
AC-45	Installing Evaporators
AC-46	Repairing Leak in Evaporator
AC-47	Checking and Servicing Air-Cooled Condensers
AC-48	Replacing Air-Cooled Condensers
AC-49	Replacing Fan
AC-50	Replacing Thermostat
AC-51	Replacing Breaker Strips Around Doors
AC-52	Checking Defrost, Mullion, and Drain Heater for Continuity
AC-53	Replacing Defrost Heater
AC-54	Checking Defrost Thermostat
AC-55	Checking and Replacing Defrost Timer
AC-57	Repairing or Replacing Solenoid Valve
AC-58	Checking Crankcase Heater
AC-61	Installing Heat Interchanger (Exchanger)
AC-62	Servicing Liquid Receivers
AC-63	Installing Liquid Receivers
AC-64	Adjusting and Replacing Low Pressure Controls
AC-65	Adjusting and Replacing High Pressure Controls
AC-70	Repairing or Replacing Hot Gas By-Pass Valve
AC-74	Servicing Electronic Controls Including Replacing Tubes
AC-75	Replacing Solid State Controls
AC-76	Troubleshooting Magnetic Starter and Coil

MODULE NO.	MODULE TITLE
AC-77	Checking Potential Motor Starting Relay
AC-78	Servicing Capacitor-Start Capacitor-Run Compressor
AC-79	Troubleshooting Electrical Circuits
AC-94	Balancing Water-Cooled Condensers
AC-95	Servicing Water-Cooled Condensers
AC-100	Repairing Automatic Ice Makers
AC-101	Servicing Commercial Automatic Ice Makers
AC-102	Determining Wet and Dry Bulb Temperature
AC-114	Adjusting Unloaders by Crankcase Pressure Method
AC-115	Adjusting and Replacing Oil Pressure Safety Control
AC-117	Working with Solid State Devices

PROGRAM SEQUENCE MASTER SHEET

PROGRAM COURT AND CONFERENCE REPORTER

MODULE NO.	MODULE TITLE
	ENGLISH
CCR-EN-1	Identifying Verbs and Subjects
CCR-EN-2	Identifying Complete Sentences
CCR-EN-3	Making Verbs and Subjects Agree
CCR-EN-4	Reviewing Sentence Structure
CCR-EN-5	Capitalizing Nouns
CCR-EN-6	Forming Plural Nouns
CCR-EN-7	Forming Possessive Nouns
CCR-EN-8	Applying Noun Rules
CCR-EN-9	Using Personal Pronouns
CCR-EN-10	Making Pronouns Agree With Antecedents
CCR-EN-11	Mastering Miscellaneous Pronouns
CCR-EN-12	Reviewing Pronouns
CCR-EN-13	Using Verbs Correctly
CCR-EN-14	Mastering Selected Verbs
CCR-EN-15	Applying Knowledge of Verbs
CCR-EN-16	Applying Knowledge of Adjectives
CCR-EN-17	Selecting an Adjective or an Adverb
CCR-EN-18	Mastering Frequently Misused Adverbs
CCR-EN-19	Eliminating Double Negatives
CCR-EN-20	Applying Knowledge of Adverbs
CCR-EN-21	Applying Capitalization
CCR-EN-22	Using the Period

MODULE NO.	MODULE TITLE
CCR-EN-23	Using a Question Mark and an Exclamation Point
CCR-EN-24	Using a Comma I
CCR-EN-25	Using a Comma II
CCR-EN-26	Using a Comma III
CCR-EN-27	Using a Comma IV
CCR-EN-28	Using a Comma V
CCR-EN-29	Using a Period, Question Mark, and Comma
CCR-EN-30	Using a Colon and Semicolon
CCR-EN-31	Understanding the Use of Quotation Marks
CCR-EN-32	Applying the Rule for the Use of an Apostrophe
CCR-EN-33	Using a Hyphen
CCR-EN-34	Applying Dash, Parentheses and Hyphen Rules
CCR-EN-35	Applying Number Usage
	LAW
CCR-LA-1	Mastering Early Legal Terms
CCR-LA-2	Understanding the Development of Law
CCR-LA-3	Mastering Terms Relating to Criminal Law I
CCR-LA-4	Mastering Terms Relating to Criminal Law II
CCR-LA-5	Mastering Terms Relating to Criminal Law III
CCR-LA-6	Applying the Principles of Criminal Law
CCR-LA-7	Applying Criminal Law to the Trial Process
CCR-LA-8	Mastering Terms Relating to Contracts I
CCR-LA-9	Mastering Terms Relating to Contracts II
CCR-LA-10	Applying Knowledge of the Principles of Contract Law
CCR-LA-11	Understanding Terms Related to Torts
CCR-LA-12	Understanding Principles Related to Torts
CCR-LA-13	Mastering Domestic Relations Law Terms Relating to Marriage and Termination of Marriage

MODULE NO.	MODULE TITLE
CCR-LA-14	Mastering Domestic Relations Law Terms Relating to Alimony, Custody, and Support
CCR-LA-15	Applying Principles of the Law of Domestic Relations
CCR-LA-16	Mastering Terms Relating to Agency
CCR-LA-17	Applying Knowledge of the Principles of Agency
CCR-LA-18	Mastering Terms Relating to Real Property I
CCR-LA-19	Mastering Terms Relating to Real Property II
CCR-LA-20	Mastering Terms Relating to Real Property III
CCR-LA-21	Applying Knowledge of Principles of Real Property
CCR-LA-22	Mastering Terms Relating to Decedent Estate Law
CCR-LA-23	Applying Principles of Decedent Estate Law
CCR-LA-24	Applying Principles of the Probate Process
CCR-LA-25	Corporate Law Terms
CCR-LA-26	Mastering Corporate Law Terms
CCR-LA-27	Mastering Terms Relating to the Law of Equity I
CCR-LA-28	Mastering Terms Relating to the Law of Equity II
CCR-LA-29	Applying Knowledge of the Principles of Equity Law
CCR-LA-30	Mastering Terms Relating to Negotiable Instruments Law
CCR-LA-31	Applying Knowledge of the Principles of Negotiable Instruments Law
CCR-LA-32	Understanding Declaratory Judgment Terms
CCR-LA-33	Understanding Principles of Declaratory Judements
CCR-LA-34	Understanding Terms Related to Pleadings and Motion Practice
CCR-LA-35	Applying Principles Related to Pleadings and Motion Practice
CCR-LA-36	Preparing a Summons
CCR-LA-37	Preparing Complaints
CCR-LA-38	Preparing an Answer

MODULE NO.	MODULE TITLE
CCR-LA-39	Mastering Examination Before Trial Terms and Phrases
CCR-LA-40	Applying Knowledge of Examination Before Trial Process
CCR-LA-41	Understanding Trial Procedure Terms
CCR-LA-42	Outlining Trial Procedure
CCR-LA-43	Applying Knowledge of Jury Instructions
CCR-LA-44	The Kentucky Court System
	MACHINE SHORTHAND
CCR-MS-1	Preparing a Shorthand Machine
CCR-MS-2	Loading a Shorthand Machine
CCR-MS-3	Demonstrating Personal Appearance
CCR-MS-4	Transcribing Pre-Printed Shorthand Notes I
CCR-MS-5	Taking Dictation I
CCR-MS-6	Transcribing Pre-Printed Shorthand Notes II
CCR-MS-7	Taking Dictation II
CCR-MS-8	Spelling Words I
CCR-MS-9	Taking Dictation III
CCR-MS-10	Spelling Words II
CCR-MS-11A	Taking Dictation IV
CCR-MS-11B	Taking Dictation IV-A
CCR-MS-12	Taking Dictation V
CCR-MS-13	Spelling Words III
CCR-MS-14	Taking Dictation VI
CCR-MS-15	Taking Dictation VII
CCR-MS-16	Spelling Words IV
CCR-MS-17	Taking Dictation VIII
CCR-MS-18	Taking Dictation IX
CCR-MS-19	Taking Dictation X

MODULE NO.	MODULE TITLE
CCR-MS-20	Spelling Words V
CCR-MS-21	Taking Dictation XI
CCR-MS-22	Taking Dictation XII
CCR-MS-23	Spelling Words VI
CCR-MS-24	Taking Dictation XIII
CCR-MS-25	Taking Dictation XIV
CCR-MS-26	Taking Dictation XV
CCR-MS-27	Inking the Shorthand Machine Ribbon
	OFFICE PROCEDURES
CCR-OP-1	Receiving Telephone Calls
CCR-OP-2	Placing Local Telephone Calls
CCR-OP-3	Placing Long Distance Telephone Calls
CCR-OP-4	Keeping Records of Telephone Calls
CCR-OP-5	Preparing Outgoing Mail
CCR-OP-6	Handling Specialized Mail
CCR-OP-7	Preparing a Cassette Player for Recording
CCR-OP-8	Using Transcribing Machines
CCR-OP-9	Establishing a Numerical Filing System
CCR-OP-10	Notarizing

SLIDE-TAPE PRESENTATIONS FOR COURT REPORTER	
MODULE NO.	MODULE TITLE
CCR-LA-6	"Assignment: Criminal Law Principles"
CCR-EN-7	"Forming Possessive Nouns"
CCR-LA-23	"An Overview of Decedent Law"
CCR-LA-26	"A Corporation is Born"
CCR-LA-29	"Negotiable Instruments in Commercial Law"
TAPE PRESENTATIONS FOR COURT REPORTER	
CCR-LA-13	Terms Relating to Marriage and Terminating Marriage
CCR-LA-14	Terms Relating to Alimony, Custody, and Support
CCR-LA-22	Mastering Terms Relating to Decedent Esiate Law
CCR-LA-25	Corporate Law Terms
CCR-LA-34	Understanding Terms Related to Pleadings and Motion Practice
CCR-LA-34	Understanding Terms Related to Pleadings and Motion Practice
CCR-LA-39	Mastering 'Examination Before Trial' Terms and Phrases
CCR-LA-41	Understanding Trial Procedure Terms
CCR-MS-5	Taking Sentence Dictation and Transcribing
CCR-MS-5	Taking Dictation I
CCR-MS-7	Taking and Transcribing Dictation
CCR-MS-7	Taking Dictation II
CCR-MS-8	Spelling Words I
CCR-MS-9	Taking Dictation III
CCR-MS-10	Spelling Words II
CCR-MS-11A	Taking Dictation IV
CCR-MS-11B	Taking Dictation IV-A
CCR-MS-12	Warmup (Tape Activity I)

MODULE NO.	MODULE TITLE
CCR-MS-12 (continued)	Abbreviations and Phrases (Tape Activity II) Speed Building (Tape Activity III)
CCR-MS-12	Taking Dictation V
CCR-MS-13	Spelling Words III
CCR-MS-14	Taking Dictation VI
CCR-MS-15	Taking Dictation VII
CCR-MS-16	Spelling Words IV
CCR-MS-17	Abbreviations, Derivatives, and Numbers (Tape Activity I) Abbreviations and Derivatives (Tape Activity II) Speed Building (Tape Activity III)
CCR-MS-17	Taking Dictation VIII
CCR-MS-18	Writing New Theory (Tape Activity I) Writing Letters from Dictation (Tape Activity II) Speed Building (Tape Activity III) Taking Dictation IX (Check-Out Activity I)
CCR-MS-19	Taking Dictation X
CCR-MS-20	Spelling Words V
CCR-MS-21	Taking Dictation XI
CCR-MS-22	Taking Dictation XII
CCR-MS-23	Spelling Words VI
CCR-MS-24	Writing Letter Combinations, New Theory Vocabulary and Consonants (Tape Activity I) Speed Building (Tape Activity II)
CCR-MS-24	Taking Dictation XIII
CCR-MS-25	Writing Numbers, New Theory Vocabulary, and Abbreviations from dictation (Tape Activity I) Speed Building (Tape Activity II) Dictation for Transcription (Tape Activity III)
CCR-MS-25	Taking Dictation XIV
CCR-MS-26	Taking Dictation XV

FIRST YEAR

PROGRAM SEQUENCE MASTER SHEET

PROGRAM AUTOMOBILE MECHANICS

MODULE NO.	MODULE TITLE
INTRODUCTION TO COMPETENCY BASED INSTRUCTION AND AUTO-SHOP PROCEDURES	
AM-0	Using Competency Based Instructional Modules
AM-0A	Safety In The Shop
AM-0B	Measuring With the Micrometer Caliper
AM-0C	Identify, Inspect, Clean and Repair Hand Tools
AM-0D	Identify, Inspect, and Repair Cutting Tools
MAINTAINING AND REPAIRING ELECTRICAL SYSTEMS	
AM-1	Servicing and Replacing Batteries
AM-2	Evaluating Charging System
AM-3	Servicing Chargins System Regulators
AM-4	Replacing Generators and Alternators
AM-5	Repairing Generators and Alternators
AM-6	Testing Cranking System
AM-7	Removing and Replacing Electrical Switches & Relays
AM-8	Repairing Starters

MODULE NO.	MODULE TITLE
AM-9	Inspecting & Replacing Points and Condensers
AM-10	Set Ignition Timing
AM-11	Maintaining Spark Plugs
AM-12	Maintaining Primary Ignition Circuits
AM-13	Maintaining Secondary Electrical Circuits
AM-14	Maintaining Electronic Ignition
	MAINTAINING AND REPAIRING FUEL SYSTEMS
AM-15	Servicing Distributors
AM-16	Adjusting Engine Performance
AM-17	Maintaining Fuel Filter
AM-18	Servicing Carburetor Air Cleaner
AM-19	Repairing and Replacing Fuel Lines and Hoses
AM-20	Checking Fuel Flow and Pressure
AM-21	Adjust and Inspect Carburetor and Choke Unit
AM-22	Replacing Fuel Pump
AM-23	Installing Carburetors
AM-24	Servicing Carburetors
	MAINTAINING AND REPAIRING COOLING SYSTEMS
AM-25	Checking Cooling System
AM-26	Replacing Hoses, Thermostats, and Core Plugs
AM-27	Replacing Cooling System Components

MODULE NO.	MODULE TITLE
	PERFORMING ENGINE OVERHAUL ACTIVITIES
AM-28	Inspecting and Replacing Exhaust Components
AM-29	Performing Cylinder Balance Test
AM-30	Testing Compression
AM-31	Performing Cylinder Leakage Test
AM-32	Inspecting Engine Lubrication System
AM-33	Changing Engine Oil and Filter
AM-34	Replacing Oil Pan and Pump
AM-35	Adjusting Valves and Diagnosing Malfunctions
AM-36	Removing and Replacing Cylinder Head
	MAINTAINING AND REPAIRING POWER TRAINS
AM-37	Adjusting Clutches
AM-38	Maintaining Universal Joints
AM-39	Repairing Manual Transmission Oil Leaks
AM-40	Replacing Rear Axle
	MAINTAINING AUTOMATIC TRANSMISSIONS
AM-41	Inspecting and Testing Automatic Transmissions
AM-42	Adjusting Transmission Linkage
AM-43	Testing, Adjusting, and Replacing Modulators

MODULE NO.	MODULE TITLE
AM-44	Adjusting Bands and Servicing Filters
AM-45	Adjusting and Replacing Neutral Safety Switches
	MAINTAINING AND REPAIRING BRAKING SYSTEMS
AM-46	Inspecting Brake Performance
AM-47	Servicing Hydraulic Brake System
AM-48	Inspecting and Repairing Drum Brake Components
AM-49	Repairing Brake Shoes and Drums
AM-50	Replacing Master and Wheel Cylinders
AM-51	Repairing Brake Cylinder Units
AM-52	Inspecting and Repairing Disc Brake Components
AM-53	Adjusting Brake Controls
	MAINTAINING AND REPAIRING FRONT END
AM-54	Lubricating Suspension Components
AM-55	Servicing Front Wheel Bearings
AM-56	Replacing Shock Absorbers
AM-57	Inspecting and Repairing Suspension Systems
AM-58	Balancing Wheels and Tires
	MAINTAINING AND REPAIRING STEERING UNITS
AM-59	Replacing Drive Belts and Inspecting Linkage

MODULE NO.	MODULE TITLE
AM-60	Servicing Manual Steering Gear
AM-61	Replacing Power Steering Pumps and Components
	MAINTAINING AND REPAIRING ELECTRICAL SYSTEMS
AM-62	Inspecting Lighting System
AM-63	Servicing Lighting Systems
AM-64	Repairing and Replacing Components and Flasher Units
AM-65	Testing and Replacing Wiring
AM-66	Servicing Assembly Fuse Box
AM-67	Analyzing Electrical Circuit Malfunctions
AM-68	Inspecting and Repairing Windshield Wiper and Controls
AM-69	Maintaining Cruise Control Units
	MAINTAINING AND REPAIRING FUEL SYSTEMS
AM-70	Replacing Gas Tank Sending Unit
AM-71	Analyze Fuel System
AM-72	Inspecting Evaporative Emission Control System
AM-73	Inspecting Exhaust Emission Control System (TAC)
AM-74	Inspecting Exhaust Emission Control System (AIR)
AM-75	Inspecting Exhaust Emission Control System (EGR)
AM-76	Inspecting Exhaust Emission Control System (Spark Control)

MODULE NO.	MODULE TITLE
AM-77	Inspecting Exhaust Emission Control System (Catalytic Converter)
AM-78	Inspecting Exhaust Emission Control System (PCV)
AM-79	Maintaining Manifold Heat Controls
	MAINTAINING AND REPAIRING COOLING SYSTEMS
AM-80	Cleaning and Chemical Test Cooling System
AM-81	Removing and Repairing Radiator
	PERFORMING ENGINE OVERHAUL ACTIVITIES
AM-82	Removing Engine and Replacing Mounts
AM-83	Cleaning Engines
AM-84	Disassembling Engine
AM-85	Cleaning and Checking Engine Parts
AM-86	Servicing Valves
AM-87	Replacing Camshaft and Bearings
AM-88	Installing Crankshaft Bearings
AM-89	Fitting Piston Pins
AM-90	Installing Pistons, Rings, and Seals
AM-91	Installing Connecting Rod and Bearings
AM-92	Installing Flywheel and Ring Gear
	MAINTAINING AND REPAIRING POWER TRAINS
AM-93	Testing and Adjusting Manual Transmission
AM-94	Replacing Manual Transmissions

MODULE NO.	MODULE TITLE
AM-95	Rebuilding Manual Transmission
AM-96	Servicing and Repairing Overdrives
AM-97	Repairing Mechanical Clutches
AM-98	Repairing Hydraulic Clutches
AM-99	Servicing Speedometers
AM-100	Replacing Pinion Seals
AM-101	Diagnosing Differential Malfunctions
AM-102	Repairing Differentials
AM-103	Repairing and Replacing Front Drive Assemblies
	MAINTAINING AND REPAIRING BRAKING SYSTEMS
AM-104	Servicing Parking Brakes
AM-105	Replacing Hydraulic Units
	MAINTAINING AND REPAIRING FRONT END
AM-106	Aligning Front End
AM-107	Adjusting and Replacing Torsion Bars
AM-108	Replacing Steering Damper
AM-109	Replacing Ball Joints and Steering Spindles
AM-110	Replacing and Servicing Control Arms
AM-111	Replacing King Pins and Bushings
AM-112	Repairing Rear Suspensions
	MAINTAINING AND REPAIRING STEERING UNITS
AM-113	Rebuilding and Adjusting Manual Steering Gears

MODULE NO.	MODULE TITLE
AM-114	Servicing Power Steering Units
AM-115	Repairing Steering
	MAINTAINING AND REPAIRING AUTOMATIC TRANSMISSIONS
AM-116	Repairing and Installing Transmission Coolers
AM-117	Replacing Transmission Extension Housing Seals and Bushings
AM-118	Removing and Installing a Transmission
AM-119	Replacing Pumps, Seals, and Bushings
AM-120	Testing and Replacing Converters
AM-121	Overhauling Transmissions
	MAINTAINING AND REPAIRING AUTOMOBILE AIR CONDITIONERS
AM-122	Repairing Air Conditioning Electrical Components
AM-123	Refrigeration Safety and Principles
AM-124	Testing Air Conditioning Pressure and Leaks
AM-125	Servicing Air Conditioning Systems
AM-126	Diagnosing Air Conditioning Malfunctions
AM-127	Replacing Compressors
AM-128	Replace Compressor Seals
AM-129	Repair Air Conditioning Compressors
AM-130	Replacing Drier and Condenser
AM-131	Replacing Air Conditioning Expansion Valves
AM-132	Replacing Evaporator Control
AM-133	Repairing Air Conditioning Controls

MODULE NO.	MODULE TITLE
AM-134	Repairing Automatic Heater and Air Conditioner and Controls
AM-135	Diagnosing Heating System Malfunctions
AM-136	Replacing Heater Core and Hoses
AM-137	Replacing Heater Controls

MODULE SLIDE-TAPES

PROGRAM AUTOMOBILE MECHANICS

MODULE NO.	SLIDE-TAPES TITLE
MAINTAINING AND REPAIRING ELECTRICAL SYSTEMS	
AM-2	AM-2, "Evaluating Charging System"
AM-8	AM-8, "Starter Bench Testing and Repairing"
AM-11	AM-11, "Maintaining Spark Plugs"
AM-13	AM-13, "Servicing Secondary Electrical Circuits"
AM-16	AM-16, "Adjusting Engine Performance"
MAINTAINING AND REPAIRING FUEL SYSTEMS	
AM-18	*AM-73, "Thermostatic Air Cleaner"
MAINTAINING AND REPAIRING COOLING SYSTEM	
AM-25	AM-25, "Checking Cooling System"
PERFORMING ENGINE OVERHAUL ACTIVITIES	
AM-36	AM-36, "Removing and Replacing Cylinder Head"
MAINTAINING AUTOMATIC TRANSMISSIONS	
AM-43	AM-43, "Check and Adjust Modulator"

MODULE SLIDE-TAPES

PROGRAM AUTOMOBILE MECHANICS

MODULE NO.	SLIDE-TAPES TITLE
AM-45	AM-45, "Adjusting and Replacing Neutral Safety Switches"
MAINTAINING AND REPAIRING BRAKING SYSTEMS	
AM-49	AM-49, "Inspect and Refinish Brake Drums"
AM-52	AM-52, "Inspecting and Repairing Disc Brake Components"
MAINTAINING AND REPAIRING ELECTRICAL SYSTEMS	
AM-67	AM-67, "Troubleshooting Electronic Circuits"
MAINTAINING AND REPAIRING FUEL SYSTEMS	
AM-72	*AM-72-1, "The Cause and Effect of Automobile Emissions" *AM-72-2, "Fuel Evaporative Control"
AM-73	*AM-73, "Thermostatic Air Cleaner"
AM-74	*AM-74, "Air Injection Reaction"
AM-75	*AM-75, "Exhaust Gas Recirculation"
AM-76	*AM-76, "Spark Control"
AM-77	*AM-77, "Catalytic Converter System"
AM-78	*AM-78, "Positive Crankcase Ventilation"

*Kentucky reprints of slide-tapes taken from: Emission Controls on Instructional Program for Auto Mechanics, Colorado State University, and EPA.

MODULE SLIDE-TAPES

PROGRAM AUTOMOBILE MECHANICS

MODULE NO.	SLIDE-TAPES TITLE
PERFORMING ENGINE OVERHAUL ACTIVITIES	
AM-86	AM-86, "Valve Service"
AM-119	AM-119, "Replacing Pumps, Seals, and Bushings"
MAINTAINING AND REPAIRING AUTOMOBILE AIR CONDITIONERS	
AM-124	AM-124, "Testing Air Conditioning Pressure and Leaks"
AM-125	AM-125, "Evacuate and Recharge Air Conditioner"
AM-126	AM-126, "Air Conditioning Diagnosis, No Cooling"
AM-127	AM-127, "Replacing Compressors"
AM-128	AM-128-1, "Seal Replacement Procedure, York & Tecumseh" AM-128-2, "Seal Replacement Chrysler Air Temp" AM-128-3, "General Motors Seal Replacement"
AM-129	AM-129-1, "Reed Valve Replacement, York & Tecumseh" AM-129-2, "Pulley Bearing Replacement, General Motors" AM-129-3, "Clutch Coil Replacement, General Motors"
AM-130	AM-130, "Replacing Drier and Condenser"
AM-131	AM-131, "Replacing Air Conditioning Expansion Valves"
AM-132	AM-132, "Replacing Evaporator Control Valves"

PROGRAM SEQUENCE MASTER SHEET

PROGRAM GARDENING - GROUNDSKEEPING

MODULE NO.	MODULE TITLE
	BLOCK 1: PREPARING AND IMPROVING SOIL
GG-00	Introduction to Gardener-Groundskeeper
GG-1	Taking Soil Samples
GG-2	Developing Fertilization Schedules
GG-3	Preparing and Applying a Compost
GG-4	Converting Subsoil to Topsoil
GG-5	Hauling and Spreading Topsoil
GG-6	Sterilizing Soil
GG-7	Preventing and/or Controlling Water Erosion
	BLOCK 2: PREPARING A LAWN
GG-8	Preparing a Lawn Seedbed
GG-9	Applying Fertilizer
GG-10	Cleaning and Lubricating Fertilizer Applicators
GG-11	Sowing Lawn
GG-12	Revitalizing and Aerating
	BLOCK 3: MAINTAINING EQUIPMENT
GG-13	Ordering and Maintaining Repair Parts
GG-14	Lubricating a Tractor
GG-15	Changing the Crankcase Oil Filter
GG-16	Servicing Spark Plugs
GG-17	Servicing the Distributor
GG-18	Replacing Radiator Hoses

MODULE NO.	MODULE TITLE
GG-19	Inspecting Tractor Tires
GG-20	Adding Oil in Small Engines
GG-21	Servicing Carburetor Air Cleaners on Small Engines
GG-22	Adjusting Small Engine Idle Speed
GG-23	Cleaning and Oiling Electric Motors
GG-24	Servicing Chain Drives
GG-25	Servicing Belt Drives
GG-26	Servicing Gear Drives
GG-27	Servicing Hand Tools
GG-28	Servicing Rotary Type Mower Cutting Blades
GG-29	Repairing Extension Cords
GG-30	Preparing a Tractor for Painting
GG-31	Painting a Tractor
BLOCK 4: CONSTRUCTING AND MAINTAINING FACILITIES	
GG-32	Building Supporting Structures for Training Vines
GG-33	Constructing Plant-Holding Arbors
GG-34	Constructing Fences
GG-35	Constructing Portable Hot-Caps
GG-36	Constructing Portable Shading Devices
GG-37	Constructing a Stone or Brick Wall
GG-38	Repairing Masonry Retainer Walls
GG-39	Repairing Asphalt and Concrete Surfaces
GG-40	Cleaning Streets
GG-41	Applying Salt to Icy Areas
GG-42	Cleaning Ornamental Pools
GG-43	Maintaining Swimming Pools

MODULE NO.	MODULE TITLE
GG-44	Cleaning Rest Rooms
GG-45	Cleaning and Digging Drainage Ditches
GG-46	Cleaning Grounds of Leaves and Litter
GG-47	Servicing Irrigation Systems
GG-48	Repairing Faucets
GG-49	Painting Lawn Furniture
	BLOCK 5: MAINTAINING PLANTS
GG-50	Planting and Mulching Flowers and Bulbs
GG-51	Watering Plants
GG-52	Removing Weeds and Grass from Flower Beds
GG-53	Sodding Worn Spots in a Lawn
GG-54	Mowing Grass
GG-55	Cutting Grass with a Power Scythe
GG-56	Using a power Edger
GG-57	Wrapping Trees or Shrubs to Protect from Weather
GG-58	Transplanting Trees
GG-59	Bracing Trees
GG-60	Applying Fertilizer to Trees
GG-61	Pruning and Trimming Trees
GG-62	Treating Cavities in Trees
GG-63	Removing Dead and Unwanted Trees
GG-64	Pruning Shrubs to Provide Stimulation and Rejuvenation
GG-65	Pruning Shrubs for Shaping
GG-66	Pruning Hedges for Shaping
GG-67	Training Plants and Shrubs
GG-68	Purchasing and Storing

MODULE NO.	MODULE TITLE
GG-69	Controlling Insects on Plants
GG-70	Applying Chemicals with a Tractor-Mounted Sprayer
GG-71	Applying Weed Killing Compounds
GG-72	Applying Chemicals to Diseased Plants
GG-73	Purchasing and Transporting Plants, Equipment and Supplies

SLIDE-TAPE PRESENTATION IN
GARDENER-GROUNDSKEEPER

GG-00	Introduction to Gardening-Groundskeeping
GG- 1	Taking a Soil Sample
GG-15	Changing the Crankcase Oil and Filter
GG-17	Servicing the Distributor
GG-21	Cleaning Carburetor Air Filters
GG-29	Repairing Extension Cords
GG-30	Using a Steam Cleaner
GG-31	Painting a Tractor
GG-33	Constructing an Arbor from a Blueprint
GG-48	Repairing Faucets
GG-58	Transplanting Trees
GG-60	Applying Fertilizer to Trees
GG-69	Controlling Insects on Plants
GG-70	Applying Chemicals with a Tractor Mounted Sprayer

APPENDIX C

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APPENDIX D

AGENDA

FIRST MODULE WRITER WORKSHOP

First Day

I.	Introduction	9:00-9:15 a.m.
II.	Explanation of V-TECS Catalog	9:15-9:30 a.m.
III.	Developing slide-tape presentations for CBVE (Tom Vantreese)	9:30-10:15 a.m.
IV.	Developing illustrations for modules	10:15-10:30 a.m.
V.	Break	10:30-10:45 a.m.
VI.	Inservice Education Module I	10:45-12:00
	**********LUNCH**********	
VII.	Writing Modules	1:00-1:45 p.m.
VIII.	Inservice Education Module 6	1:45-9:00 p.m.

Second Day

I.	Review and Discuss modules written by team members	8:30-9:00 a.m.
II.	Distribute module assignments	9:00-10:00 a.m.
III.	Question and answer period a. Travel voucher b. Payment for modules c. How to return work to project director	10:00-11:30 a.m.
IV.	Schedule next workshop	11:30-12:00

AGENDA

Workshop for Developing Competency-Based
Individualized Materials

Second Workshop

First Day		
9:00 - 9:15	Evaluation of Modules	Project Director
9:15 - 9:30	Production Status	Project Director
9:30 - 4:30	Module Production	Module Writers
Second Day		
8:30 - 4:30	Module Production	Module Writers
Third Day		
8:30 - 4:30	Module Production	Module Writers
Fourth Day		
8:30 - 4:30	Module Production	Module Writers
Fifth Day		
8:30 - 3:00	Module Production	Module Writers
3:00 -	Closing Session	Project Director

AGENDA

Workshop for Developing Competency Based
Individualized Materials

Third Workshop

First Day		
9:00 - 9:30	Production Status	Project Director
9:30 - 4:30	Module Production	Module Writers
Second Day		
8:30 - 4:30	Module Production	Module Writers
Third Day		
8:30 - 4:30	Module Production	Module Writers
Fourth Day		
8:30 - 4:30	Module Production	Module Writers
Fifth Day		
8:30 - 3:00	Module Production	Module Writers
3:00 -	Closing Session	Project Director

APPENDIX E

APPENDIX E

FIELD TEST SITES

AIR CONDITIONING

TEACHER	SCHOOL AND ADDRESS
1. Jim Norman	Barren County Area Vocational Education Center Route 6 Roseville Road Glasgow, KY 42141
2. Tom Bentley	Jefferson State Vocational-Technical School Eighth & Chestnut Streets Louisville, KY 40203
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FIELD TEST SITES

ALTERATIONIST I

TEACHER	SCHOOL AND ADDRESS
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2. Billie Vanderpool	Ashland State Vocational-Technical School Route #6, Box 434 Winslow Road Ashland, KY 41101
3. Sara Wilder	Bell County High School Route #1 Pineville, KY 40977
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FIELD TEST SITES

AUTO MECHANICS

	TEACHER	SCHOOL AND ADDRESS
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2.	Larry Bailey	Ohio County Area Vocational Education Center Highway 231 S. Hartford, KY 42347
3.	Bobby Sewell	Jefferson State Vocational-Technical School Eighth & Chestnut Streets Louisville, KY 40203

FIELD TEST SITES

COURT REPORTER I

TEACHER	SCHOOL AND ADDRESS
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3. Geneva Browning	Mayo State Vocational-Technical School Paintsville, KY 41240
4. Janice Davis	Estill County High School Irvine, KY 40336

FIELD TEST SITES

GARDENING & GROUNDSKEEPING

	TEACHER	SCHOOL AND ADDRESS
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4.	Doug Southworth	Scott County High School Georgetown, KY 40324

APPENDIX F

AGENDA

INSERVICE WORKSHOP FOR FIELD TEST TEACHERS

First Day		
9:00 - 9:30	Introduction Purpose of Workshop	Project Director
9:30 - 10:00	Demonstrate Use of Caramate Go through Inservice Module 1	
10:00 - 11:30	Continue Working through Inservice Modules 1, 7, 8, 9, 10, 11	
11:30 - 12:30	Lunch	
12:30 - 4:00	Continue Working through Inservice Modules 1, 7, 8, 9, 10, 11	
Second Day		
8:30 - 10:00	Complete Inservice Modules	
10:00 - 11:30	Distribute and discuss Instructor's Manual	Project Director
11:30 - 12:30	Lunch	
12:30 - 4:00	Distribute modules printed and slide/tape presentations available and have teachers go through at least ten of them	
Third Day		
8:30 - 11:30	Continue going through first ten modules of occupational area	
11:30 - 12:30	Lunch	
12:30 - 1:30	Distribute references and supplies	
1:30 - 4:00	General Discussion Question/Answer Period	

Fourth Day

8:30 - 11:30	Discussion of Revision Procedures A. Module Evaluation Forms B. Rewriting and Correcting Modules C. Time Schedule for Submitting Revision Notes
11:30 - 12:00	Final Question/Answer Period

SUPPLEMENT A

LIST OF INSERVICE EDUCATION MODULES

1. Defining CBVE: In this module you will learn what CBVE is, the characteristics of a CBVE program, and how CBVE can improve vocational education in Kentucky.

2. Identifying Process Steps of Kentucky CBVE Plan: In this module, you will learn the process steps in implementing Kentucky's CBVE Plan.

3. Indentifying Products of Kentucky's CBVE Plan: In this module, you will learn about the numerous products of value to vocational education personnel at the local level.

4. Explaining the Model for Developing a Catalog of Objectives: In this module, you will learn about the development of catalogs of objectives with accompanying criterion-referenced measures and performance guides.

5. Using the Catalog of Objectives: In this module, you will learn how to utilize the V-TECS catalogs to produce or revise instructional materials.

6. Developing a Module: In this module, you will learn how to write a student learning package (module).

7. Organizing Learning Centers: In this module, you will learn how to organize a learning center.

8. Preparing to Use Modules: In this module, you will learn how to prepare in advance for using the individualized modules.

9. Evaluating Students: In this module, you will identify some strategies relating to evaluation when using competency-based individualized materials.

10. Managing Instruction: In this module, you will learn how to manage instruction which allows for these instructor and student roles.

11. Orienting Students to Competency-Based Individualized Instruction: In this module, you will learn how to orient the students before they begin competency-based individualized instruction.

SUPPLEMENT B

HANDBOOK
FOR THE DEVELOPMENT OF
VOCATIONAL EDUCATION MODULES

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April 1975

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Overview of the Handbook

This HANDBOOK has been written primarily for the assistance of the module developers working in the Kentucky Competency-Based Curriculum Project. It is also intended to be of help to module developers in other areas of education, and to administrators who will be installing competency-based programs in their schools.

The HANDBOOK describes the content of each of the components of a module, and explains the format to be used. It also gives guidelines and suggestions for writing each component to aid the module writer in producing effective instructional packages within the established framework of competency-based education.

Along with the descriptive material are exemplary samples of each component. The vocational program to which the example applies is indicated in brackets.

Competency-Based Vocational Education

The Kentucky Bureau of Vocational Education and the Curriculum Development Center for Kentucky have made a serious commitment to the concepts of competency-based education (CBE) and to the belief that CBE can make a significant contribution toward the improvement of vocational education in the Commonwealth. The development of individualized instructional materials for a number of specific occupational programs is an indication of that commitment.

The CBE effort began with the selection of an initial group of occupations that were considered to be of high priority in terms of the manpower training needs of the state. As the first step in the CBE curriculum development process it was necessary to identify the competencies needed by occupational workers as they function on the job and, therefore, the competencies to be included in the instructional program. The term "competence" does not refer solely to specific knowledge and skills, but may also include more complex abilities such as being able to think logically, organize work, and appreciate workmanship.

These essential tasks, or competencies, were validated by asking incumbent workers in the target occupations exactly what they do. The resultant list of competencies was translated into a catalog of performance objectives on which the competency-based instructional program is built. A criterion-referenced measure and a standard describe what the vocational student must do to demonstrate that he or she has mastered the performance required in the objective and thus acquired the necessary competence. The objectives and criterion-referenced measures become the basis for the materials of instruction for a

competency-based educational program.

Competency-based vocational education programs are programs in which the performance objectives are specified, and agreed to, in rigorous detail in advance of instruction. Students know what they are expected to be able to do before they complete the program and what standards of workmanship will be demanded of them. Each student is held accountable not for simply achieving passing grades, but for attaining at least a given minimum level of competency in performing the essential tasks of the occupation. The student must demonstrate his competency by performing the task while the instructor rates the performance, using a checklist or other objective measure.

Because students have a great range of abilities, learning styles, and motivation, some will take longer than others to achieve the required competencies. To allow each student to progress at his own rate, it therefore becomes desirable to individualize the instruction. Traditional instructional patterns of group demonstration, group testing, and unit organization do not work very well in competency-based education. Individualized instruction can be effectively achieved by devising student learning packages, called modules. The module is designed for student use and provides the student with the objectives he is asked to achieve. It also lists a sequence of activities to help him learn the competence and outlines an objectively rated performance that will allow him to demonstrate his proficiency.

In fully individualized programs, the amount of time students are enrolled in a vocational program is not the standard by which they are certified as being ready to enter an occupation. The students will be considered as having successfully completed the program when, and only when, they have demonstrated their ability to perform the competencies

that have been identified for their career goals.

While the instructional module is the most important and most obvious component of the competency-based curriculum, there are a number of other supporting components in the system:

Supporting instructional materials for students include slide-tapes, audiotapes , reference books, and models.

Supporting instructional facilities include study carrels, sound slide projectors, and related equipment needed to help the student complete the modules.

The instructor's manual is a guide for classroom instructors which is designed to aid them as they work with students in the modularized program.

A program management system outlines procedures for installing the competency-based curriculum and management techniques to keep it progressing smoothly.

Orientation and training provides initial in-service education for instructors as they become responsible for directing competency-based programs.

Competency-based education, then, is not simply a collection of instructional modules for students, but a total system for planning, developing, and implementing a curriculum designed to ensure that students acquire the knowledge, skills, and attitudes essential for successful job performance.

Glossary of Terms

Competency. A skill, either cognitive or psychomotor, which is required in the vocation and which the student is expected to learn and demonstrate in the educational program.

Competency-based education (also called performance-based education). An education program in which the competencies (or skills) to be acquired and demonstrated by the student, as well as the criteria to be applied in assessing the competencies, are made explicit. The student is held accountable for meeting those criteria.

Performance objective. A statement which specifies a competency a student is to acquire and demonstrate.

Affective objective. A statement which specifies an affective characteristic (value, attitude, commitment, response) that a student is expected to acquire and demonstrate.

Instructional module. A set of learning activities in organized physical form intended to facilitate the students' acquisition and demonstration of a particular competency or group of related competencies.

Learning packages. Instructional modules which are combined with other learning resources in order to provide complete experiences and to facilitate acquiring competencies.

Prerequisites. Those competencies a student is expected to demonstrate before he begins to work on a particular instructional module.

Learning activities (also called learning experiences). Activities or experiences which are made available to a student to help him master an objective or set of objectives.

Feedback (or knowledge of results). Procedures by which the student is informed of his progress, areas of weakness, or his level of success in demonstrating the desired competencies.

Final assessment procedures. Measuring processes which are used to determine the student's level of mastery relevant to a specified objective or set of objectives following instruction intended to facilitate his achievement of mastery.

Components of the Modules

A standard module format has been adopted for use in all the occupational areas. It has been designed to ensure uniformity of appearance and consistency of approach. By following the module format, the writers will have fewer routine decisions to make and can concentrate on the instructional content of the module. Writers should follow the standard format given in the directions and the examples as closely as possible. The specific content, of course, will be unique to each module.

Each module contains the following components:

- A title
- An Introduction
- Directions
- Objectives
- A series of Learning Activities
- Special Learning Materials

  Instruction Sheets
  Student Self-Checks
  An Instructor's Final Checklist

Directions for the learning activities and the materials in the special learning materials should be clear, simple, and straightforward. The modules are designed to be as self-instructional as possible, so that the student should not need to ask the instructor for clarification of instructions or for routine details. Assignments should be specific, required readings should list exact references and page numbers, and the instruction sheets should be clearly labeled.

Following are some general writing guidelines:

- Modules are intended to be read and used by students. Write to the student and for the student. Say it simply.
- When writing to students, use the personal term you, not one.
- Avoid educational and technical jargon. Define technical terms when they are introduced.
- Use a minimum of punctuation. Use capitals and underlining sparingly...save them for special occasions.
- Use the active rather than the passive voice. Say, *Put the lid back on the jar right away;* not *The lid needs to be placed back on the jar immediately as the contents are poured out.*
- Edit your own work before you submit it for typing.
- A reference to a book should list the following: author's last name, title of the book (underlined), edition (if not the first), and pages to be read. Do not include publishing information:

  e.g., Crouse, Automotive Mechanics, 5th edition, pp. 215-222.

- If students are to read a magazine article, furnish them with the following information: author's last name (if known), title of article (in quotation marks), name of magazine (underlined), date of issue (in parentheses), pages to be read.

  E.g., Wooten, "A Guide to Furnishings Conservation," Forecast, (March, 1975), pp. 26-28.

- When you refer the student to another module in the program, give module number and title in quotes:

  e.g., DA-51, "Making a Bite-Wing Radiograph."

- Use the term student for the learner of whatever age group. Do not use "pupil" or "trainee."
- Use the term instructor rather than "teacher."
- Videotape is one word. Audiotape is one word.
- In case of question as to accepted style of usage, talk to the project editor.

Module Title

Each module has a title which appears on the front page, at the top under the program name.

The title is designed to make the module easy to identify, and it tells in a few words what the student will be doing in completing the module.

The module developer is to write the title, using the following guidelines:

- Examine the objectives for the module and determine the skill or competency the module is designed to teach.
- The title should describe in clear and straightforward terms what the student will be doing.
- The title should be very short--about one to five (1-5) words.
- Avoid cleverness, puns, and obscure terms.
- Avoid unnecessary repetition of the program name in the module title. For example, the word "tractor" is implied in the Tractor Mechanics modules: i.e., not "Installing Tractor Ignition Points," but simply "Installing Ignition Points."
- Use the present-participle form: e.g., "Making Bite-Wing Radiographs," not "Bite-Wing Radiograph Procedure."

Examples of the Title

[BANK TELLER]

Cashing Checks

[DENTAL ASSISTANT]

Developing X-ray Film

[CHILD-CARE WORKER]

Telling Stories to Children

[CARPENTRY]

Making Miter Joints

[CASHIER-CHECKER]

Bagging the Merchandise

[MACHINE SHOP]

Reading the Vernier Caliper

The Introduction

The "Introduction" section provides the student with a frame of reference for the module. It gives the student an idea of the purpose of the module, of how it relates to what has already been learned, and of how it relates to future learning. In very concise terms, the introduction tells what the student is going to learn in the module, and why it is important for him to learn it.

The wording and tone of the introduction should attempt to allay the anxieties surrounding unfamiliar or difficult topics by assuring students that the objectives can be achieved. Within the restrictions of space, the introduction should attempt to provide motivation and arouse the student's interest in the learning experiences that are to follow. One way of doing this is to describe a useful skill the student will gain from the module.

The following are guidelines for writing the introduction:

- The introduction should be short, concise, and succinct. It must be no longer than 75 to 100 words.
- Use short sentences, with no difficult or unfamiliar terms.
- Use the second person form (e.g., "You will be learning how to thread the sewing machine.").
- If an unusual technical term appears in the module title (e.g., "Preparing the Amalgam"), define the term very briefly in the introduction.
- Resist general, trite statements of encouragement, such as "Good luck," or "You can do it!"

Examples of the Introduction

[BANK TELLER]

Many of the customers who come to your teller's window will have a check that they wish to turn into cash. Before the check can be cashed, it must be examined by the teller to be sure it is legally acceptable. When he has done this, the teller can process the check and dispense the cash. When batches of checks are presented by the customer, a somewhat more complex procedure is required. In this module you will learn how to handle these transactions.

[TRACTOR MECHANIC]

The engine ignition points are electrical contacts that open and close like a switch to send electricity to the spark plugs at just the right time. If the farm tractor engine is to start easily and operate with full power, the points must be installed carefully and adjusted very accurately. You must be able to adjust the points before you can go on with other engine tune-up operations. In this module you will learn how to clean old points, install a new set of points, and adjust the ignition gap to the maker's specifications.

Directions

The "Directions" section will be very similar for all the modules. The directions have three main functions:

1. to tell the student about any prerequisite modules or special conditions required.
2. to tell the student how to take the final test if he feels he already has the competency with which the module deals.
3. to help the student get started on the learning activities of the module.

In listing the prerequisites, list only those modules that are immediately and directly essential to the successful completion of the present task. Do not list all the modules that would normally precede it in a typical program. Most modules will have no listed prerequisites, or will have only one or two. Sometimes the module writer may want to suggest that the student review a particular module to refresh his memory on a topic.

There may be some special conditions that must be met before the student can successfully accomplish the module, such as the availability of a piece of special equipment, a live customer, a specified uninterrupted period of time, or even correct weather conditions. State any special conditions in the first sentence of the directions.

The format for the directions should follow the given examples very closely. Only a few words should be changed as appropriate (e.g., "read the three objectives below," or "read the objective below").

Examples of the Directions

[BANK TELLER]

Before you start to work on this module, be sure you have completed Module BT-12, "Using the Adding Machine," and Module BT-15, "Making Out Cash Tickets."

If you have completed these modules, read the three objectives below. If you think that you are already able to perform these tasks, read the Check-Out Activities on the back cover. Then either arrange with your instructor about doing the Check-Out Activities,

or

If you need to complete learning activities in order to be able to do the tasks, find the Learning Activities inside this module and go through them in the order in which they are listed.

[COSMETOLOGY]

In order to complete this module you will need a customer on whom to practice. You may ask a classmate or an outside adult to take the role of the customer.

Read the objective below. If you think that you are already able to perform this task, read the Check-Out Activities on the back cover. Then either arrange with your instructor about doing the Check-Out Activities,

or

If you need to complete learning activities in order to be able to do the tasks, find the Learning Activities inside this module and go through them in the order in which they are listed.

Objectives

There may be just one objective for the module, or there may be several. It is not the responsibility of the module writer to select the objectives but simply to verify that the given objectives are the correct ones for the module.

The objectives are to appear in the module in exactly the same form as they are stated in the V-TECS Catalog of Objectives and Criterion-Referenced Measures. Do not reword or reorganize them in any way. If a typographical or other error is suspected, the appropriate curriculum specialist should be consulted. Do not include the reference numbers from the V-TECS catalog.

If there are several objectives included in the module and they need to be put into a sequence, organize them on the basis of a chain of competencies; i.e., if the student needs to have accomplished one skill before he can be expected to accomplish another, place the objectives in that order. If there is more than one objective, number each one in its correct order.

Examples of Objectives

[BANK TELLER]

(1) Given a display of three checks with endorsements, examine each check and choose the one that is acceptable for cashing.

(2) Given a teller's window prepared for cashing checks and a teller's stamp, cash a single check. All items on the instructor's checklist should be performed acceptably.

(3) Given a teller's window prepared for cashing checks, a teller's stamp, and an adding machine, cash a batch of checks. All items on the instructor's checklist should be performed acceptably.

[CASHIER-CHECKER]

(1) Provided merchandise, a price list and price-marking tools and supplies, correctly price-mark all of the items so that all of the prices will agree with those on the price list and all of the marked prices can be read.

Learning Activities

In many ways the Learning Activities section is the core of an instructional module. It translates the expected goals of the written objective into learning that results in real behavioral change on the part of the student. The Learning Activities section tells the student just what he will need to do to achieve the objectives and master the necessary skills. It presents the activities in a very concise manner, and in an ordered sequence, directing the student to various specific resources, or asking him to engage in certain laboratory experiences. If the learning activities are well thought out and clearly stated, the student should be able to proceed through them with little or no management from the instructor. If the activities are carefully selected, the student will learn and will be able to perform the competencies involved in the module.

When instruction is modularized, individualized, and performance-based, the instructor's role and function change considerably. The instructor will not function very much as a lecturer, a discussion leader, or a presenter of classroom demonstrations. He or she will be more of a resource person, making learning diagnoses, giving prescriptions , providing assistance, asking questions, and making evaluations. Thus, the learning activities will not by-pass the instructor or turn the program into a kind of in-school correspondence course, but will utilize the instructor in a more efficient way in order to gain the most from his professional knowledge and expertise.

It is essential that the selected learning activities be designed to lead directly to the specified competencies of the module. They should

include everything a student needs to know or be able to do to reach the objective. It will not be assumed that the student will somehow fill in the gaps by asking around, watching somebody else, or making some good guesses. If he needs certain information, he will be told how to get it. If he needs to develop a physical skill, he will be shown the skill and be given the opportunity to practice until he has perfected his performance. If he is to produce something, he will be told what he is to produce and how to go about it.

At the same time the learning activities must not include extraneous matter and must not give students an assignment with the vague idea that somehow it will do them good. The readings should be to-the-point, the laboratory assignments should be carefully limited to what the student must be able to do, and the practice exercises should concentrate on the requisite skills. As the learning activities are devised, they will have to be constantly checked against the performance objectives to make sure they lead directly to student competence and the achievement of the objectives.

Most instructional modules in vocational education will include a knowledge component and a skills component in some form. Depending on the occupational service area and the learning strategy involved, most learning sequences will begin with experiences designed to increase awareness and provide the necessary foundational knowledge. This knowledge (or cognitive) component will include a grasp of terminology, facts, data, and other information related to the competency.

The next activity (or several activities) will present the student with the skills involved and provide opportunity to practice the skills at different levels of complexity and difficulty. The first

practice may be isolated and simple. (For example: "Practice using the hand wood-plane on a scrap piece of wood until you achieve a smooth, straight cut and a continuous chip.") Later practice may require more complex use of the skill under more demanding conditions. (For example: "Plane all six sides of a board, keeping each square with the other, and within specified dimensions.")

The final learning activities should provide experience as close to the real world and the criteria of the performance objective as possible. The balance of knowledge and skills components will depend greatly on the subject matter. The student of electronics who is learning to deal with Ohm's Law will need to learn a great deal of terminology, abstract concepts, and theory, while the computational skills involved may offer little that is new to him. When he is completing a module on soft-soldering, however, the amount of new factual knowledge may be minimal, but perfecting the skill of soldering under a variety of conditions may take a considerable amount of time and practice. The relative amount of stress to be placed on the knowledge and skills components depends on the objective of the module and must be controlled strictly.

The last learning activity listed in the module will always be:

> ARRANGE with your instructor to complete this module by going through the CHECK-OUT ACTIVITIES listed on the back cover.

Frequently instructors (and module writers) fall into a pattern of using only two or three kinds of learning activities in their instructional strategies. This is understandable because they are familiar with these few tactics, know that they usually work, and feel comfortable with them. The students, however, may well suffer from learning activities that are unsuitable for them, that lack variety of mental or physcial challenge, or that are just plain boring. Learning can be increased by varying the stimuli. In these

modules, attempt to utilize a wide variety of learning activities to suit a range of students' learning styles and personal interests.

It is very important that the number of learning activities included in any one module be limited to those essential to the student's learning of the competency. Activities thought to be enriching or included just because they might be "good experience" must be omitted. Keep the activities short so that the student can learn the material in a reasonable length of time. A module devoted to a limited skill may have only two or three learning activities. A module dealing with very complex skills or broad knowledge might have as many as eight or even ten learning activities, but this should be considered as the maximum.

SUGGESTIONS FOR LEARNING ACTIVITIES

The following section describes a number of kinds of learning activities that are suitable for use in individualized instructional modules. Some specific examples are also given. These suggestions are not meant to be all-inclusive, but are presented to stimulate the module writers' own creative thinking.

1. Readings from textbooks of short, relevant sections dealing specifically with the knowledge required to reach the objective. This may be a single reference or may be given as alternative references from different books.

2. Examination or data-gathering from standard reference books of the vocational field (e.g., Machinery Handbook, Graphic Standards, or Reference Manual for Office Personnel).

3. Completion of a section of a programmed text or other programmed material.

4. Reading of special materials available in the school library (e.g., books, encyclopedia articles, periodical articles from bound volumes, etc.).

5. Solving of practice problems in the skills component (computational problems, exercises, etc.).

6. Viewing or listening to individualized audio or audio-visual materials (e.g., slide-tapes, audiotapes, filmstrips, illustrations, models mock-ups).

7. Observing or operating models, mock-ups or dummy set-ups to gain understandings of mechanisms or operating controls (e.g., plastic mock PBX board, rotary engine, set-up of electrical circuit, practice key board).

8. Role-playing of performance in a simulated situation. Students may take the principal role of the practitioner or the participating role of the customer, the assistant, the audience, etc. These should be final learning activities.

9. Real-life performances, where the students function for short periods of time under controlled conditions in an actual work situation, or a situation very close to real (e.g., conducting a story-reading time at a child-care center, setting up equipment in a surveying team). These also should be final learning activities.

10. Observing the skilled vocational worker in a real work situation. This should be done with specific goals in mind, usually with some form of guide, observation instrument, or report form which will give structure and point to the observation period.

11. Videotaping of student performance, to be viewed and used by the student to evaluate and improve his performance.

12. Simulation experiences, where a student goes through a "dry run" of the performance with the conditions controlled and consequences minimized. "Case Studies" in which students write their reactions and responses to the given situation are also considered simulation experiences (e.g., working with dummy patient in health care; a model head in cosmetology; disassembling and assembling a non-functioning aircraft engine).

13. Small-group experiences, when students at closely related points of achievement can get together to discuss, plan, or evaluate their work (e.g., discuss results of observation, plan for role-playing sessions, evaluate the instructional value of their activities).

14. Instructor demonstration of an operation. There may be instructional situations in which the only solution is for the instructor to personally perform the operation and describe it as students observe. Usually this will need to be on an individual basis, but sometimes may be possible for small groups or even the total group.

15. Guest speakers or outside experts. These classroom experiences may be listed in an appropriate module and may be scheduled by the teacher at a time when many students are ready for the experience. Usually the nature of the topic is such that the whole group can benefit, even though they may not be at that exact point in their learning.

16. Production or construction of projects or services. These must directly contribute to the objective and, therefore, must be carefully designed and assigned, limited in scope, and require a specific amount of time (e.g., do a complete manicure on a fellow student; construct a W truss; make working drawings of a floating footing; make a skirt with zipper; decorate a cake with icing).

17. Problem-solving activities. Some objectives may require solving the problem involved in given situations. These may be relatively short experiences (e.g., prepare a luncheon menu for a particular group) or quite long-term jobs (e.g., design a vacation cottage for a family of four in a mountain setting). It is very important in problem-solving activities that the student is known to possess the requisite skills, that he has access to the information necessary to solve the problem, and that the problem not go beyond the performance objective.

18. Skills practice exercises. Some skilled operations may require that the student not only be able to perform them correctly once, but that he be able to do them smoothly and flawlessly every time. Learning activities may therefore specify practice periods in terms of time, number of repeated experiences, or quantity of production (e.g., make welds without a rod for two hours; produce ten perfect button holes, take dictation in shorthand).

19. Memorization. The performance objective may require or suggest that the student can best function if he has committed some information to memory. This is a legitimate learning activity (e.g.,memorize the table of metric measures, memorize the Gregg characters, memorize the fomula for lathe speeds, memorize a list of technical terms).

20. Collecting activities. Some performance objectives may be reached by asking students to gather and collect real objects so as to become familiar with their characteristics, the variety available, the settings in which they may be found (e.g., make a collection of metal fasteners, building materials, local lawn weeds, children's street games, newspaper classified ads).

21. Scaled-down performance. If the real performance is large in physical size, complex because of the number of participants, or consumes a quantity of expensive materials, a limited performance or a scaled-down situation may give the student a better chance of gaining confidence or success and may be more instructionally efficient and practical. (Examples of scaled-down experiences are: teach an outdoor game to two children, construct a scale model of a built-up roof construction, lay out an irrigation system on a land contour model, build a corner of a block wall.)

22. Reading of the Instruction Sheets specifically prepared for the module. These will be concise statements of very relevant information that is geared to the student's level and available from no other convenient source.

23. Performing experiments in the laboratory. Assign the student specific experiments to perform with specified equipment and processes. Have him observe the results and report or utilize them in some way.

24. Writing of technical reports, reactions to case studies, reports for class discussion, etc. This activity may be particularly valuable in the technical areas.

25. Preparing visual materials. Gather information and produce diagrams, schematic drawings, charts, graphs, topographic maps, contour maps, graphic solutions, structural drawings, styling illustrations, layouts, design sketches. Activities of this type are usually interesting to students, add variety to the learning experience, and tend to reinforce learning.

26. Planning experiences. Performance objectives may require that the student learn how to plan the job or operation. Planning may include selecting or designing the job, developing a sequence of procedures, figuring materials and costs, noting checkpoints and safety cautions, devising evaluation standards.

27. Critique or evaluation experiences. In these, the student is asked to rate or evaluate an example of a finished product or service, or to make a critical analysis of a performance of a specified skill. The object of the evaluation may be a sample product, the work of a fellow student, the student's own work, a film or videotape of a performance. The final result may be a rating sheet, written report, or oral report.

28. Cooperative student experiences. Though instruction may be individualized there are situations when two or more students may work together in a learning experience. Many occupational tasks involve teamwork, and it is proper for the learning activities to incorporate this. Activities that involve heavy lifting, cooperative production techniques, worker interaction, or that usually require a team approach in the occupation are places where cooperative student experiences are applicable.

RECOMMENDATIONS ABOUT LEARNING ACTIVITIES

- Readings must be directly related to objective--the writer should not require the reading of a whole chapter just because it would be good to know, when a page or two is all that is really necessary.

- Viewing motion picture films on an individual-student basis is usually not feasible because of the difficulties of arranging for the film, projector and viewing room. The use of overhead transparencies may still be helpful in some situations, especially if good ones are already available. The equipment is not difficult to use.

- The instructor must not be overused in the routines of learning experiences. He must be free to perform the functions of assisting, helping students overcome learning difficulties, and evaluation. (E.g., Do not use instructor in routine role-playing, for additional assignments or information, or in practice exercises.)

- Observation experiences should be directly pointed toward the performance objective and not undertaken simply in the hope that somehow the experience will increase learning. Observation time must be reasonably short. Arranging for observation must not be embarrassing or difficult for the student, or time consuming for the teacher.

- In individualized instruction, teacher demonstrations will need to be strictly limited. It is unrealistic and inefficient to expect that the teacher will be able to present elaborate demonstrations to each student individually as needed. Group demonstrations are not likely to take place at a time when all students will be ready to learn from them, except perhaps in the early stages of a course. "Mini-Demonstrations," taking just a minute or two to complete, may be a practical device.

- Every vocational teacher should be concerned with the improvement of student communication skills, but in most vocational areas the success in the program should not depend on the student's ability to read at a high level or write skillfully. Most learning activities, therefore, should not require sophisticated communication skills, and the evaluations should not be based on the student's ability to write effectively. Of course, if the program performance objectives specify a certain verbal ability, the learning activities can be expected to reflect this.

- The learning activity assignments of the module should consist of short and concise statements such as are shown in the examples. If there are learning activities that require long instructions or suggestions (for example, an observation experience), these should be fully explained in an instruction sheet that will appear in the Special Learning Materials pocket. The learning

activity assignment should simply refer to this instruction sheet by title.

E.g., READ Instruction Sheet I, OBSERVING THE CHILD-CARE WORKER IN ART ACTIVITIES.

- The learning activities statement is to begin with an action word (verb) to indicate to the student what he is to do in the activity. This action word will be printed in capital letters and underlined. Sometimes, in order to make the meaning clear, it will be necessary to capitalize and underline the first two or three words of the statement (e.g., PLAY THE ROLE ..., not PLAY the role).

Examples of Learning Activities

1 → READ Jones and Laughlin, The Bank Teller: Tasks and Procedures, pp. 81-97.

(or)

2 → VIEW the slide-tape presentation BT-17, "Cashing Checks," in the Learning Center.

(or)

3 → COMPLETE THE PROGRAM in the A.B.A. booklet, Checks, pp. 26-97.

(or)

4 ✓ CHECK YOUR KNOWLEDGE of examining checks for acceptability by taking Student Self-Check I, EXAMINING CHECKS FOR ACCEPTABILITY.

5 → READ Instruction Sheet I, PAYING CURRENCY.

(or)

6 → PLAY THE ROLE of the bank teller in dispensing currency. Ask a fellow student or your instructor to request amounts of money in specific denominations. Using a supply of currency at the teller's window, go through the transactions of dispensing the correct currency.

(or)

7 → PRACTICE processing batches of checks in the learning laboratory. Get the practice materials for Module BT-17, and use the adding machine to prove your totals.

8 ✓ ARRANGE with your instructor to complete this module by going through the CHECK-OUT ACTIVITIES listed on the back cover.

Examples of Learning Activities

1 → REVIEW THE TERMS given in Instruction Sheet I, TERMINOLOGY OF BITE-WING RADIOLOGY.

2 → READ Anderson, Dental Radiology, pp. 27-28 and pp. 40-45. Or READ Simmons, Clinical Dental Assisting, pp. 71-77.

3 ✓ CHECK YOUR KNOWLEDGE of bite-wing radiology by completing Student Self-Check I, BITE-WING RADIOLOGY.

4 → VIEW the slide-tape presentation D.D.M. 820, "Oral Radiology: Interorals Techniques," in the Learning Center.

5 → EXAMINE AND IDENTIFY accessories needed to take a bite-wing radiograph. Read Instruction Sheet IV, ACCESSORIES FOR BITE-WING RADIOLOGY.

6 → STUDY Instruction Sheet V, POSITIONING THE PATIENT AND PLACING THE INTERORAL BITE-WING FILM IN THE ORAL CAVITY.

7 → PRACTICE positioning the patient and placing bite-wing film. Use the mannequin in the skills laboratory.

8 → PRACTICE by using a short-cone 8" target film distance and set the proper MAS and KU on the x-ray machine in accordance with the exposure chart.

9 → DEMONSTRATE to your instructor specific safety rules to be observed in protecting the patient and yourself.

10 ✓ ARRANGE with your instructor to complete this module by going through the CHECK-OUT ACTIVITIES on the back cover.

Student Self-Check

The "Student Self-Check" is a device included in the module to allow the student to check his or her own progress toward final mastery of the competency. It is primarily used to check on the cognitive or knowledge phase of learning that usually forms the first of the learning activities. Because it is a self-check, designed to help students improve their learning, it is not to be utilized by the instructor for purposes of grading. In the sequence of learning activities, the self-check will typically be placed right after the readings or other cognitive experiences.

The student self-check may take a wide variety of forms, depending on the subject matter and approach. These forms may include, among others:

- questions that require a short essay-type response
- review items in a textbook to which the student is referred
- a series of objective test items
- diagrams, charts, sequence lists, etc., that require completion
- paper-and-pencil problems to solve
- test items presented orally on tape

Correct responses to the self-check items should be supplied by the module writer. The student needs to be given knowledge of results to reinforce his correct responses and to provide an opportunity to learn the material missed. For essay-type items, model answers should be given; other items require correct solutions, answers, or completed devices. The correct responses can be given at the bottom of the page (perhaps upside down to discourage peeking), on the back of the

self-check sheet, or on a separate sheet. Since modules are planned to be largely self-instructional, the instructor should not be involved either in administering the self-check or furnishing the responses. Of course, any student who has questions or difficulty with the self-check has the option of talking it over with the instructor.

Example of Student Self-Check

Student Self-Check I
SETTING THE LATHE FOR SPEEDS AND FEEDS

Write a brief definition of the following terms:

1. CUTTING SPEED _____

_____

2. FEED _____

_____

What do the following abbreviations stand for in lathe terminology?

3. cs _____

4. fpm _____

5. D _____

Use the correct formula given in Johnson, Machine Shop, p. 130, to solve the following problems:

6. What is the cutting speed in feet per minute of a piece of carbon steel 1 1/2" in diameter, revolving at 150 rpm? _____

7. Find the cutting speed of a piece of aluminum 7/8" in diameter turned on a lathe at 180 rpm. _____

8. Find the rpm at which a piece of tool steel 3/4 D should be turned. _____

ANSWERS

1. The distance the workpiece moves past the cutter in one minute as measured on the circumference.
2. The distance the tool travels along the lathe for each revolution of the workpiece.
3. Cutting speed in feet per minute.
4. Feet per minute.
5. Diameter of the workpiece in inches.
6. 59 fpm.
7. 41 1/4 fpm.
8. 265 rpm.

Instruction Sheets

The inner pockets of the module are designed to hold instructional material needed by the student to complete the learning activities and to achieve the performance objective of the module. Most of the material contained in the pockets will be in the form of instruction sheets. The term "Instruction Sheet" is a general term for all kinds of typewritten, printed, mimeographed, duplicated, or blueprinted instructional material to be used by vocational students in the laboratory or classroom. An instruction sheet may be a single sheet or several pages and may be prepared by the module writer, derived from school sources, or obtained from commercial publishers or industrial sources However, copyrighted materials may be used only with the publisher's permission.

Instruction sheets in the module are basically completely prepared mini-lessons which are intended to aid self-instruction, and which include all necessary information and directions. There are a number of types of instruction sheets that may be used in a module, each with its own purpose and characteristics. Some of the most suitable types are:

- Job sheet, or project sheet. This form of instruction sheet is designed to give instructions and specifications for doing a complete piece of work or a job. It may include detailed written directions, or a working drawing, or both.
- Operation sheet. This is a sheet giving instruction in a single operation or process that requires some special knowledge or skill of the student. There may be several operations involved in any given job.
- Information sheet. This is provided to furnish students with special information--special because it is very new, obscure, difficult to obtain, or necessary to have close at hand.
- Assignment sheet. This may be a sheet of problems to be solved, questions to be answered, observations to be made, or tests to be performed.

- Work sheet. This is a printed form to be filled in by the student in the process of gathering data, performing a job, or solving problems.

It is helpful for the module writer to develop the various types of instruction sheets listed above in terms of the function and form. It is not necessary, however, for students to be concerned as to the classification of the instruction sheet that they are asked to read. The sheet heading, therefore, will simply indicate that it is Instruction Sheet I (or a consecutive number), along with the specific title of the sheet (for example, GREETING CUSTOMERS).

All instruction sheets, of whatever type, require careful thought and preparation. All facts, data, and specifications should be thoroughly checked for accuracy. Spelling, grammar, and technical terminology must be beyond reproach. Modern textbooks in the occupational service areas are usually filled with clearly written and well illustrated information and instruction, so it is not necessary for the module writer to duplicate this material. The module learning activities should simply refer the student to the appropriate reference.

Instruction sheets should be developed for the module if:

- The information is new or unusual, or for some other reason textbook instruction is not available.
- Students need to refer to instructions frequently in order to complete the laboratory work.
- The available readings are scattered, written at the wrong level, or are filled with much extraneous material.

Where instruction sheets are required, the following general guidelines apply:

- Use language that is straightforward and easily understood by the students for whom the sheet is intended. Define new terms.
- Supplement the words with sketches, illustrations, and diagrams for greater clarity.

- Give specific directions that are clear and concise, and that minimize the need for explanation by the instructor.
- Limit each instruction sheet to one piece of paper if possible, but avoid crowding the page.
- Use a uniform format for all instruction sheets so that students can easily find the desired information. Space the various divisions of the sheet (such as title, purpose, illustrations, and text) to produce an easily read and attractive page.
- Be consistent in terminology to avoid confusion.
- Include only relevant material that is designed to help the student achieve the objective. Use discretion to avoid filling the sheet with unnecessary information, no matter how fascinating it may seem.
- Instruction sheets for the early modules of a program may need to be very structured and specific. Exact procedures, tools and materials may be given in detail so that nothing is left to chance. In the later modules, the instruction sheets may be less fully detailed to allow the students to solve some of the problems involved.
- Do not copy published and copyrighted materials. Such materials can be used only as a basis for writing original instruction sheets.
- All instruction sheets must be suitable for duplication on 8 1/2" x 11" paper.
- Instruction sheets will be produced in many forms according to their purposes. In the case of the job or project sheet, however, it will probably aid the student if the same format is used throughout all the modules of the program. A suggested format for such a sheet follows.

Sample Format for Job or Project Type of Instruction Sheet

[*Material in italics describes the content to be included*]

Instruction Sheet

JOB TITLE: [*Name the job in a word or two.*]

REFERENCE: [*Reference to textbook instructions, illustrations, specification sheets, manuals, or other materials needed to complete this job.*]

LABORATORY WORK: [*Instructions for completing the skills phase of the job. Including as appropriate:*

--Materials required
--Tools and equipment required
--Illustration or drawings of completed job
--Step-by-step procedures
--Dimensions and/or specifications
--Safety precautions or special requirements]

CHECKPOINTS: [*Note specific places in the work when the instructor should be called in to check on the progress of the job.*]

EVALUATION: [*Describe the procedures for the instructor's evaluation of the job.*]

Instruction Sheet II

PAYING CURRENCY

Handling currency is one of the most important functions you perform. Skill in handling currency can be acquired only through practice and application. In paying out currency, the following points should always be remembered:

1. Save time by asking the customer in which denominations he prefers his change.
2. Get the amount clearly in your mind. When paying out change from a split check, be sure to verify the change count with your adding machine, and check with the tape once more before handing out the change to the customer.
3. Count out large bills first.
4. Always perform two cash counts:
   a. One as the currency is removed from the drawer.
   b. The second as the cash is paid out to the customer.
5. Pick up each bill with the forefinger and thumb, roll it to separate it from the remaining bills, and place it in the other hand with the balance of bills to be paid out.
6. Don't count the currency faster than the customer can count; he will often recount and hold up the line while doing so.
7. If the customer changes his mind about the denomination, the request should be complied with cheerfully.

Example of Instruction Sheet

Instruction Sheet II

VENEER GRAFT

OPERATION: Making a veneer graft on tree stock

PURPOSE: The veneer graft can be used successfully to propagate fruit trees on stock 1 year old or older.

CONDITIONS: Scions should be terminal, 3 to 4 inches long, and 3/8 to 1/2 inch in diameter.
Buds should be swollen, but not sprung.
A large terminal bud on scion is preferred.

TOOLS AND MATERIALS: .0035" vinyl film strips
Sharp knife

PROCEDURE:

1. Make a slanting cut about 2" long in side of stock so that at the bottom the cut is 1/16" to 1/8" in depth.
2. Make an angular cut at the base of the large cut so as to remove the piece of bark and wood. (Fig. A)
3. From the scion, cut a piece of bark and wood to correspond with the cut in the stock. (Fig. B)
4. Fit the little tongue on the base of the scion into the notch at the lower end of the cut on the stock.
5. Wrap the graft snugly with a strip of vinyl film, leaving the terminal bud exposed. (Fig. C) The graft should take in 3 or 4 weeks.

A. STOCK

B. SCION

C. SCION IN PLACE

Check-Out Activities

The check-out activities are really items for a final test of the competencies the student is expected to learn in the module. This section is sometimes referred to as the "final assessment procedure," or "final evaluation." Before the student can be certified as having completed the module, he or she must have gone through the check-out activities and have accomplished the required tasks at the specified level of performance. The final assessment is always done by the instructor.

In some cases, students who have had previous experience in the occupation, or who have acquired the skill in general life experience, may be able to go through the check-out activities without having done the learning activities of the module. The check-out activities and the final checklist must be written and administered so that the student who has acquired the requisite skill outside the classroom will in no way be at a disadvantage in the evaluation procedures.

There are two main parts of the check-out activities as written in the module: (1) the statement of directions, and (2) the list of activities themselves. The directions will consist of a very short statement telling the student how he is to go through the check-out activities and what instrument or procedure the instructor will use to rate his performance. In all cases the student should clearly understand how he will be evaluated and what evaluation criteria will be used--there should be no obscurity.

The check-out activities themselves will be taken directly from the V-TECS catalogs and in fact will be the criterion-referenced measures for

the given objectives. There should be no change in wording or organization of the measures. The check-out activities are to be presented on the back page of the module in the same order or sequence as the objectives are presented on the front page.

Examples of Check-Out Activities

[BANK TELLER]

The statements below explain the activities you must be able to complete in order to finish this module. As you go through each activity, your instructor will rate your performance using the Instructor's Final Checklist, EXAMINING AND CASHING CHECKS.

- ✓ Your instructor will provide a display of three checks with endorsements. Examine the face and endorsement of each check. Place an "X" across the check that is acceptable for cashing.
- ✓ Go to the teller's window. Remove the check from the container labeled "Customer" and cash the check.
- ✓ Go to the teller's window. Remove the checks from the container labeled "Customer" and cash the batch of checks.

[CHILD-CARE WORKER]

The statement below explains the activity you must be able to complete in order to finish this module. After you go through the activity your instructor will rate your performance using the Instructor's Final Checklist, PLANNING SPECIAL ACTIVITIES.

- ✓ The teacher will provide you with a case situation. Plan a field trip, the use of a resource person, a holiday celebration and a party for the situation described.

Instructor's Final Checklist

An "Instructor's Final Checklist" will be needed in almost all modules. It will be derived from the V-TECS catalog or developed specifically for the module by the module writer. The purpose of the checklist is to provide the instructor with an instrument to determine whether or not the student has mastered the competencies taught in the module. By listing a series of elements to be rated by the instructor, the checklist makes the evaluation much more objective and ensures that the instructor rates all the important elements in the competence. This kind of carefully controlled evaluation is absolutely essential to the validity of competency-based education.

When the student thinks he is prepared, he asks the instructor to examine his work or observe his actual performance of the task. The instructor then rates the performance or the product according to the criteria stated on the checklist. A copy of the checklist will appear in the module, so the student will be in no doubt as to what he is expected to be able to do.

The checklist may be designed to rate the performance of the student as he demonstrates competence in performing an operation, a process, or a behavior (e.g., shutting down a gas-welding outfit; teaching a song to children; dealing with a customer's complaint).

The checklist may evaluate the final product produced by the student which indicates his competence in the required task (e.g., a specified floral arrangement; a spray-painted auto body; a television set with correct color convergence).

The checklist may assess a combination of both process and product where both are important. This evaluation is necessary to determine that the student can not only complete the task successfully, but can do it correctly every time, or within a specified period of time. The evaluation may also show whether the student can complete the task smoothly and easily, or whether he can use certain accepted procedures (e.g., replace a clutch within flat-rate time; perform a hair frosting while keeping the customer comfortable; make a dental x-ray without exposing oneself to radiation).

The items on the checklist must not be selected in an arbitrary manner or from a personal viewpoint as to what is important for the student to know. The checklist is to be derived from the objectives in the V-TECS catalog. Many of the objectives in the catalog already have evaluation checklists developed for them, and these can be readily translated into the accepted module format.

Checklists can also be derived from the Performance Guide of the V-TECS catalog. In doing this, each item in the performance guide for the particular objective should be reviewed. The items that relate directly and importantly to the performance objective should be reworded for inclusion in the evaluation checklist. Some items in the Performance Guide can be combined to make one point of evaluation.

The following guidelines should be used in developing the checklist:

- Indicate the module number in the upper-right corner.
- The title of the checklist is exactly the same as the title of the module.
- The directions should be worded the same way on all checklists--with the exception of the first sentence which describes the student performance.

- Whenever possible, avoid repetition by using an introductory phase ending in a colon, followed by a list of performance elements.

- All the items should be stated in the past tense (e.g., "The student adjusted the shut-off valve").

- The checklist has a column for a rating of "Partially Accomplished." This rating is not acceptable for proving final competence, but it can be used as a basis for student/teacher discussion.

- The column marked "Not Applicable" is there to be used when circumstances do not permit the instructor to rate the student (e.g., equipment not available; the item does not fit the program; etc.)

- Each checklist is to have a statement of the performance level required of the student. The "Performance Level" statement should be reproduced exactly as shown in the example of the checklist that follows, except in cases where the V-TECS catalog specifies a lower level of acceptable performance.

- The checklist must be designed to fit a standard 8 1/2" x 11" sheet.

- Keep the checklist within a reasonable length--one page if possible, two if necessary. Remember that the instructor is going to be required to rate every item. Select items that are crucial to the performance of the competence and/or combine items.

Example of Instructor's Final Checklist

Instructor's Final Checklist
EXAMINING AND CASHING CHECKS

Check the student's performance in the following elements of examining and cashing checks.

Place an X in the appropriate box indicating not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, the item was impossible to complete, place an X in the "Not Applicable" box.

Performance Level: All items must receive a rating of FULLY ACCOMPLISHED (or Not Applicable). If any items are rated Not Accomplished, or Partially Accomplished, the student and instructor will discuss this and decide which learning activities must be repeated.

	Student Performance			
	Not Applicable	Not Accomplished	Partially Accomplished	Fully Accomplished
1. The student examined checks for acceptability and identified all checks that were not acceptable.	[ ]	[ ]	[ ]	[ ]
2. In the process of cashing a single check, the student:				
a. examined negotiability points of the check.	[ ]	[ ]	[ ]	[ ]
b. prepared cash-out ticket.	[ ]	[ ]	[ ]	[ ]
c. dispensed money	[ ]	[ ]	[ ]	[ ]
d. retained correct information for the records. . . .	[ ]	[ ]	[ ]	[ ]
3. In the process of cashing a batch of checks, the student:				
a. examined negotiability points of each check	[ ]	[ ]	[ ]	[ ]
b. proved the total of the batch of checks	[ ]	[ ]	[ ]	[ ]
c. prepared the cash ticket.	[ ]	[ ]	[ ]	[ ]
d. dispensed cash to the customer.	[ ]	[ ]	[ ]	[ ]
e. processed the checks.	[ ]	[ ]	[ ]	[ ]
f. retained correct information for the records. . . .	[ ]	[ ]	[ ]	[ ]

Example of Instructor's Final Checklist

Instructor's Final Checklist
ORGANIZING AND GUIDING STORY TIME

Check the student's performance in the following elements of organizing and guiding story time.

Place an X in the appropriate box indicating not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, the item was impossible to complete, place an X in the "Not Applicable" box.

Performance Level: All items must receive a rating of FULLY ACCOMPLISHED (or Not Applicable). If any items are rated Not Accomplished, or Partially Accomplished, the student and instructor will discuss this and decide which learning activities must be repeated.

	Student Performance			
	Not Applicable	Not Accomplished	Partially Accomplished	Fully Accomplished
In organizing and guiding story time, the student:				
1. Selected an activity appropriate to the interests and needs of the group.	[ ]	[ ]	[ ]	[ ]
2. Prepared materials required for the activity.	[ ]	[ ]	[ ]	[ ]
3. Assembled needed materials, supplies, and equipment	[ ]	[ ]	[ ]	[ ]
4. Used techniques to discourage loudness during the activity.	[ ]	[ ]	[ ]	[ ]
5. Aided and encouraged the children in developing word concepts	[ ]	[ ]	[ ]	[ ]
6. Used techniques designed to get the participation of each child in the activity	[ ]	[ ]	[ ]	[ ]
7. Used a variety of stories, including the familiar and unfamiliar.	[ ]	[ ]	[ ]	[ ]
8. Practiced positive disciplinary techniques.	[ ]	[ ]	[ ]	[ ]
9. Completed a self-evaluation of performance in guiding story time.	[ ]	[ ]	[ ]	[ ]

Instructor's Final Checklist

STRAIGHT-TURNING PROJECT I

Check the student's performance in the following elements of straight-turning on an engine lathe.

Place an X in the appropriate box indicating not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, the item was impossible to complete, place an X in the "Not Applicable" box.

Performance Level: All items must receive a rating of FULLY ACCOMPLISHED (or Not Applicable). If any items are rated Not Accomplished, or Partially Accomplished, the student and instructor will discuss this and decide which learning activities must be repeated.

	Student Performance			
	Not Applicable	Not Accomplished	Partially Accomplished	Fully Accomplished
The straight-turning project completed by the student exhibited the following characteristics:				
1. The length of the piece was to specified dimensions, within ± 1/32"	[ ]	[ ]	[ ]	[ ]
2. Diameter of cylindrical section was to specified dimension, within ± .001" over its entire length	[ ]	[ ]	[ ]	[ ]
3. The shoulder was clean, sharp, and at 90°	[ ]	[ ]	[ ]	[ ]
4. Rounded end had 1/16" radius, with smooth and uniform curvature	[ ]	[ ]	[ ]	[ ]
5. Surface finish was smooth, with no noticable defects or tool marks	[ ]	[ ]	[ ]	[ ]
6. All sharp edges were deburred	[ ]	[ ]	[ ]	[ ]

Instructional Illustrations

Illustrations in a variety of forms are extremely valuable in developing effective instructional modules. Many times, illustrations can explain, instruct, and clarify in a far more efficient manner than can words. For students who have limited reading abilities, a good drawing can make the difference between learning or not learning the competency of the module. Artists are available to assist module writers in developing and completing instructional illustrations. Available time and financial resources, however, impose some important limitations on the use of illustrations.

All of the illustrations used in the module must have a strictly instructional purpose. Each drawing, diagram, or sketch must be planned to teach a specific concept or transmit some well-defined information that cannot be done as well in any other way. It will not be possible to use illustrations simply for aesthetic reasons, or to entertain the students, or to fill space. Illustrations will be limited to the instruction sheets and student self-checks, which will be placed in the inner pocket of the module.

Illustrations may take the following forms:

Diagrams	Charts & Graphs
Schematic Drawings	Plan Drawings
Enlarged Details	Simplified Drawings

Original illustrations should not be specially made when they are already available from other sources. If a good drawing is available in a standard textbook, the module writer should refer the student to the page in the text where it appears. Writers and artists should examine the files of existing drawings to determine whether useable ones already exist, thus saving a great deal of the artist's time. However, under no

circumstances should copyrighted materials be used in the modules, nor should photocopies be made for reproduction.

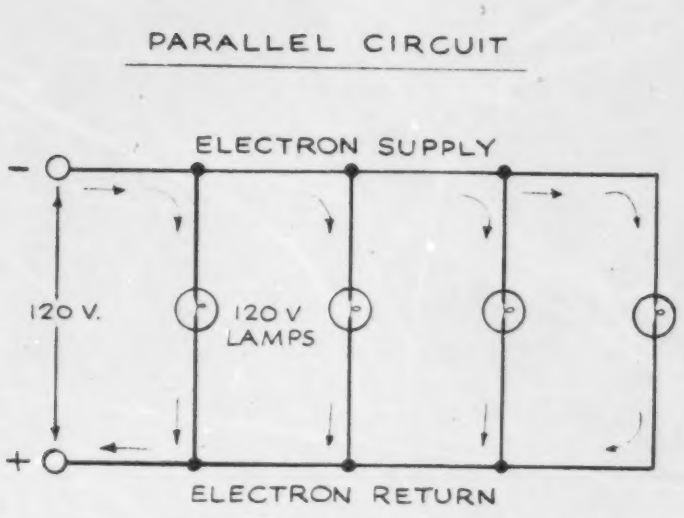
The information to be included in the drawing, and the form the drawing should take, are the responsibilities of the module writer. The writer should provide the artist with all the material, information and tecnnical data that is necessary to complete the work. It is not the responsibility of the artist to do research on the topic, though he may have ideas and suggestions on how to make the drawing best convey the message.

GENERAL GUIDELINES FOR ILLUSTRATIONS

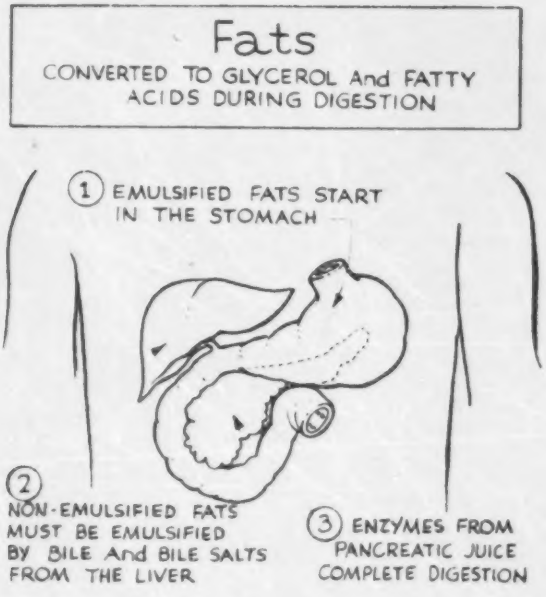
- Plan to use line drawings with simple, bold lines. Photographs can be used, but slides can not be reproduced.
- Avoid the necessity for the use of shading techniques.
- Make the drawings simple and stylized rather than heavily detailed.
- Concentrate on one concept or idea in the drawing. Focus on what is essential and eliminate the nonessential.
- Plan to use few (if any) drawings of human figures, hands, or other difficult material.
- Artists will letter drawings using professional freehand style, typewriter, or rub-off and LeRoy lettering.
- Lettering size: 1/8" or larger will be standard for drawings, 3/16" or larger for projected material.
- The original drawings will be made in ink for purposes of reproduction.
- Captions for drawings will be furnished by module writers. Use short, descriptive phrases, with correct technical terms and spelling.
- Artists will use templates and other time-saving devices whenever possible.
- Finished drawings must fit 8 1/2" x 11" format. Both vertical and horizontal drawings should have 1 1/2" top margins and 1" side and bottom margins. Maximum size for a drawn image should be 6 1/2" x 8 1/2".

Examples of Illustrations

[ELECTRICITY]



[HEALTH OCCUPATIONS]


Fats
CONVERTED TO GLYCEROL And FATTY ACIDS DURING DIGESTION
1 EMULSIFIED FATS START IN THE STOMACH
2 NON-EMULSIFIED FATS MUST BE EMULSIFIED BY BILE And BILE SALTS FROM THE LIVER
3 ENZYMES FROM PANCREATIC JUICE COMPLETE DIGESTION

Instructional Media

Audio and visual instructional materials can make a more important contribution to individualized instruction than to traditional education methods. These kinds of materials augment the teacher's function by providing another path to learning--a way that may be best suited to many students' abilities and learning styles. The variety media presentations bring to learning activities benefits all students by maintaining interest, stimulating thought, and clarifying ideas. Carefully selected media can provide a means of transmitting information that is often essential to communication. There are many educational situations when a photograph or a sound recording is indispensible.

Of the great variety and combinations of media now available, the competency-based education project will standardize a few basic types. The following are the types that are most suitable for use in individualized and modularized instruction and at the same time come within the resource limits of the project:

- 2 x 2 color slides sets (either 35mm or 127 size film) produced by the CDC or from commercial sources
- Cassette audiotapes, CDC produced
- Slide-tape presentations in which the slide is automatically synchronized with the sound on the cassette tape
- Filmstrips from commercial sources

It should be noted that for various reasons, several common types of media will not be used. These include videotapes, 8mm films, single-concept loop films, and overhead transparencies. Rented or loaned 16mm films cannot easily be incorporated into modularized programs; so their use will be limited to supplemental or enriching experiences to be scheduled

for large group instruction at the discretion of the classroom teacher. Films cannot be required as integral learning activities of the modules. If module writers decide to produce their own media for the modules they develop, they will need to use one of the accepted types.

Module writers will need to decide whether the module requires the use of some form of media to aid the student in reaching the performance objective. Among the reasons for selecting a media strategy in place of other forms of instruction are:

- Available readings are inappropriate or inadequate.
- The students are likely to have difficulty in comprehending a written description.
- A special sequence of illustration is essential.
- The performance objectives require information to be presented in pictorial or auditory form.
- Color is essential to the understanding of the topic.
- A change of stimulus is needed to maintain interest and increase learning.

If any form of media presentation is required, the module writer will need to plan the material carefully. The sequence of photographs should be organized for the desired instructional effect by planning a story board. Narrative, either written or tape recorded, that is to accompany the photos should be planned along with the pictures and written down. It will be necessary to check to be sure that the objects or scenes to be photographed will actually be available when required. As the plans develop, the module writer should consult the project's media director for suggestions, ideas, and for final approval of the proposed presentation.

Some module writers will be able to develop their own media, either in the form of slides or sound recordings. The same standards of type size, quality, and development process will apply as with project-produced materials. The project media specialists will provide as much help and cooperation as possible.

Cassette tape recordings can serve several distinct and important purposes in instructional modules. To aid students who have reading difficulties, audiotape recordings of necessary readings can be made by the classroom teacher or the module developer. Tape recordings can be made to accompany slides as descriptive or explanatory material, and tape recordings can be coordinated with illustrations or text in the instruction sheets. Audio recordings may be helpful in teaching students to identify sounds related to occupational operations, or they may be used to teach students correct pronunciation of technical terms. Recordings may be taken right to the work station to "talk the students through" an operation.

It is important to remember that all of the media materials to be developed for modular instruction must be for individual student use rather than for the teacher's use in group instruction. Slide-tape presentations and tape recordings, therefore, are to be self-instructional and easily available to students for use at any time they are ready for them. In the Learning Activities section of the module an appropriate reference will be made to the media in its proper sequence. Each piece of media will bear a title and the number of the module to which it belongs. A typical learning activity reference might be:

LISTEN to the cassette tape for module AB-21, "Checking Freon Charge," while looking at the diagrams in Instruction Sheet II.

GENERAL GUIDELINES FOR MEDIA MATERIALS

- Slides and other media productions must be directly aimed at helping students achieve the performance objectives of the module. They should not be used for entertainment or general enrichment.
- Media productions should not be used when paper reproductions in the form of instruction sheets would be instructionally superior (e.g., lists of terms to be memorized, diagrams to be studies and referred to).
- The number of slides and slide-tape presentations that can be produced within the module development project is strictly limited. The topics to be produced will need to be selected with care in order to gain the greatest effect within available resources.
- Module writers should review commercial catalogs of media materials to locate material available for purchase. It is important that the commercial product is directly concerned with the module topic.
- Care must be taken to avoid duplicating copyrighted materials. If in doubt, don't use them.
- When slides are to be made, use simple, uncluttered set-ups of readily available equipment and facilities.
- Scenes to be photographed must be examined to be sure they show good examples of safety and/or sanitation. (E.g., Be sure students are wearing safety glasses, and that equipment is shown in clean and safe condition.)
- If possible, use colorful cardboard arrows, spots, or captions in the picture to aid students in identifying the important elements of the scene.
- Whenever possible, use close-ups to be sure that students can see the details, even on a very small viewing screen.
- If students or other persons are to be included in the photo, make sure they are appropriately dressed and groomed.
- Ethnic and minority groups and women appearing in illustrations must be depicted as responsible and dignified persons. The picture must not appear derogatory or degrading.
- Minority groups and women must be shown in representative numbers in appropriate situations.

PROCEDURES FOR THE PRODUCTION OF SLIDE-TAPE PRESENTATIONS

Module writers who need the services of a media specialist to help prepare slide-tape presentations must do the preliminary planning and preparation before the photographer arrives at the production site. In order to ensure efficient production and an effective final presentation, follow these procedures:

1. Review your instructional material carefully and decide which areas will require supporting media or illustrations.

2. Select the media form most appropriate for the instructional needs. Avoid elaborate media when a simple instruction sheet will do the job.

3. If you decide to use color slides, your first step is to plan a set of storycards. These are index cards for planning and controlling the production of the slides and audiotape. Write your story ideas on the bottom of the card (one per card). In the upper left corner of the card draw a simple sketch of the proposed photograph.

4. Assemble your storycards and begin to put them in proper sequence. Plan a beginning and an ending and let your story (the instructional content) flow in an interesting and logical order. Place the cards on a large table or wall so that you see at a glance if it is complete, consistent, and properly sequenced. Rearrange, add or delete storycards to refine the effect.

5. After the instructional content is planned and sequenced, develop the script and refine the photo ideas.

6. Submit your storycards to your co-director for assistance and approval before proceeding further.

7. Prepare titles and art work if possible. If you are unable to do this, write a complete description of needed art work for others to do.

8. Select and prepare the photo locations. The site must be clean, orderly, and in the best safety conditions.

9. Prepare a definite time schedule so that the photographer can move from one scene to another without delay. This is important.

10. Arrange for any "actors," such as students or workers, to be at the scene at the required time.

11. Be present and ready when the photographer arrives. Plan to complete all photographic work during this one session because he may not be able to return.

Module Evaluation

One supremely critical factor in the success of the competency-based education project is that of the quality of the final product itself--the module. Quality, in this sense, is not simply a matter of a well constructed device, free of typographical errors and containing technically correct information. It is a module that is capable of facilitating learning and changing student behavior.

To achieve and maintain the production of instructionally effective modules a process of continual evaluation will need to be utilized. Module writers will review their own work, compare it to exemplary models, and evaluate it by utilizing objective criteria. Further review, critique, and evaluation will be undertaken by the project co-directors, editor, and project director. It is highly desirable that open communication be maintained among members of the project team in order to identify any deficiencies and correct any misapprehensions.

In order to make the module review as complete and objective as possible, a module assessment checklist has been developed. This checklist includes evaluative criteria designed to focus on the instructional adequacy of the module and to keep it consistent with the performance objectives and the instructional setting in which it will be used. While each of the elements can be given a yes or no response, it is the reason behind each response that is most important.

The module assessment checklist may be used by the module writer as a self-check instrument. The checklist will be used by the co-directors, editor, and project director to evaluate modules as they are submitted. A sample copy of the checklist follows.

MODULE ASSESSMENT
CHECKLIST

MODULE NO. _____ MODULE TITLE: _____

ELEMENTS	YES	NO	?	COMMENTS
1. The introduction:				1.
a. describes what the student will learn.				a.
b. tells the student why the competency is needed.				b.
2. The directions are correct and explicit.				2.
3. The objectives are correctly stated.				3.
4. The learning activities:				4.
a. are consistent with the objectives.				a.
b. provide sufficient opportunity for the student to learn.				b.
c. are practicable and feasible.				c.
d. are appropriate to the student level.				d.
e. are clearly and succinctly stated.				e.
f. include a variety of learning modes.				f.
g. are limited to the necessary knowledge and skills.				g.
h. are free from harmful side effects.				h.
i. are largely self-instructional.				i.
j. provide student reinforcement.				j.
k. provide practice of skills in controlled settings.				k.
l. provide simulated or real-world tryout of competency.				l.
m. minimize the hazards of failure.				m.

ELEMENTS	YES	NO	?	COMMENTS
5. Student self-checks:				5.
a. are directly related to the objective.				a.
b. cover the required knowledge.				b.
c. provide the student with feedback.				c.
6. The instruction sheets:				6.
a. are clearly and correctly titled.				a.
b. are written at the student's level.				b.
c. provide the essential information.				c.
d. include appropriate instructional illustrations.				d.
e. are adequate in scope and depth.				e.
7. The instructor's final checklist:				7.
a. is in correct format.				a.
b. measures student achievement of the module objectives.				b.
c. is limited to the competencies stated in the objectives.				c.
d. states the desired performances in unambiguous terms.				d.
e. is based on observable student performance or on the product of performance.				e.

SUPPLEMENT C

BROCHURES EXPLAINING KENTUCKY CBVE

1. Background on CBVE: In this module, you will become familiar with some background information on Kentucky CBVE, the Kentucky model for providing CBVE as it is currently being developed, CBVE terminology, and advantages of CBVE.

2. CBVE Demonstration Sites: In this module, you will learn about the CBVE demonstration sites and how you may arrange to visit them.

3. Effectiveness of CBVE: In this module, you will learn about the results of studies done to determine the effectiveness of CBVE.

4. Future Goals of CBVE: In this module, you will become familiar with the implementation plan for CBVE, its accomplishments during the 1976-78 biennium, and objectives for the 1978-80 biennium.